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VOLUME 6

LIST OF CONTENTS

NUMBER 1

W. Warren: A study of adolescent psychiatric in-patients and the outcome six or more years later. 1. Clinical histories and hospital findings 1

Lawrence Casler: The effects of supplementary verbal stimulation on a group of institutionalized infants. 19

Sulammith Wolff and Stella Chess: An analysis of the language of fourteen schizophrenic children 29

Reuven Kohen-Raz: Development increase of ambidexterity in target tests 43

Roy I. Brown: Distractibility and some scholastic skills 55

Book Reviews 63

NUMBER 2

Michael Rutter: Classification and categorization in child psychiatry 71

C. B. Hindley: Stability and change in abilities up to five years: Group trends. . . 85

Anthony Ryle, D. A. Pond and Madge Hamilton: The prevalence and patterns of psychological disturbance in children of primary age 101

Lily Lavery and Frederick H. Stone: Psychotherapy of a deprived child . . . 115

James H. Straughan, Warren K. Potter, Jr. and Stephen H. Hamilton, Jr.: The behavioral treatment of an elective mute 125

Books Reviews 131

Notices 139

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NUMBERS 3/4

W. Warren: A study of adolescent psychiatric in-patients and the outcome six or more years later. II. The follow-up study 141

D. V. Connor and M. McGeorge: Psychological aspects of accelerated pubertal development 161

C. B. Hindley, A. M. Filliozat, G. Klackenberg, D. Nicolet-Meister and E. A. Sand: Some differences in infant feeding and elimination training in five European longitudinal samples. 179

Frank J. Menolascino: Autistic reactions in early childhood: Differential diagnostic considerations 203

Diane H. Kelman: Gilles de la Tourette's disease in children: A review of the literature . 219

Marvin Greenbaum: Joint sibling interview as a diagnostic procedure 227

ALFRED B. HEILBRUN, JR., BETTY JO GILLARD and SAMUEL N. HARRELL: Perceived maternal rejection and cognitive interference 233

RICHARD A. REINHART: Some relationships between early rheumatic fever, intelligence and anxiety scores 243

MARTIN GITTELMAN: Behavior rehearsal as a technique in child treatment 251

Book Reviews 257

Notices 269

AUTHOR INDEX

BARBOUR, R. F. 67*
BROWN, R. I. 55
BURT, C. 63*

CASLER, L. 19
CHESS, STELLA 29
CONNOR, D. V. 161

FILLIOZAT, A. M. 179

GELDER, M. G. 260*
GILLARD, BETTY JO 233
GITTELMAN, M. 251
GREENBAUM, M. 227

HAMILTON, MADGE 101
HAMILTON, S. H. 125
HARRELL, S. N. 233
HEARNSHAW, L. S. 257*
HEILBRUN, A. B. Jr. 233
HINDLEY, C. B. 85, 179
HURWITZ, H. M. B. 134*

IRVINE, ELIZABETH E. 131*

KELMAN, DIANE H. 219
KLACKENBERG, G. 179
KOHEN-RAZ, R. 43
KRIKLER, BERENICE 136*

LAVERY, LILY 115
LOVELL, K. 137*, 263*
LUMSDEN, J. 138*
LUNZER, E. A. 264*

MACLAREN, J. 262*
MACNAMARA, F. M. 69*
MCDOUGAL, KAY 136*
MCGEORGE, M. 161
MENOLASCINO, F. J. 203
MILLER, E. 65*, 66*
MITTLER, P. 266*
MOORE, T. 262*
MORRIS, D. 267*

NICOLET-MEISTER, D. 179

O'CONNOR, N. 261*

POND, D. A. 101
POTTER, W. K. Jr. 125

RACHMAN, S. 137*
RAVENETTE, A. T. 266*
REINHART, R. A. 243
RUSSELL DAVIS, D. 138*, 259*
RUTTER, M. 71, 132*
RYLE, A. 101

SAND, E. A. 179
SCHAFFER, H. R. 65*, 265*
SHIELDS, R. 264*
STONE, F. H. 115
STRAUGHAN, F. H. 125

TIZARD, J. 68*

VAUGHAN, G. F. 69*

WALTON, H. J. 64*
WARREN, W. 1, 141, 258*
WEDELL, K. 69*
WEST, D. J. 258*
WHEELAN, L. 267*
WOLFF, SULAMMITH 29, 133*, 259*

YUDKIN, S. 135*

(*indicates a book review)

THE JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY AND ALLIED DISCIPLINES

Official Organ of the Association for Child Psychology and Psychiatry

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1. This journal is primarily concerned with child psychology and child psychiatry, but it is recognized that many other disciplines have an important contribution to make in furthering knowledge of the mental life and behaviour of children. In the absence of a unified body of generally accepted fact and theory in this field, an important function of the journal is to bring together contributions of a high quality, springing from different points of view, in order to promote an eventual integration. Relevant papers will accordingly be welcomed from such related fields as animal behaviour, anthropology, education, family studies, paediatrics, physiology and sociology.
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    - (c) Correspondence will not be a feature of the journal, but critiques of papers may be accepted, provided they conform to the scientific level of the journal.
    - (d) From time to time there may be contributions to symposia on topics of common interest to several disciplines.
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A STUDY OF ADOLESCENT PSYCHIATRIC IN-PATIENTS AND THE OUTCOME SIX OR MORE YEARS LATER.

I. CLINICAL HISTORIES AND HOSPITAL FINDINGS

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INTRODUCTION

ADOLESCENCE, which lies between childhood and adulthood, provides links between the two; the previous childhood histories of psychiatrically disturbed adolescents are relatively recent, while their subsequent careers into early adulthood are comparatively short. The study of psychiatric ill-health occurring in adolescence and its follow-up may therefore help to make clearer any relationships there may be between them, or how far the patterns of adolescent disorders are peculiar to the age period and without relationships with either.

In 1949, an in-patient unit for sixteen boys and sixteen girls of adolescent age was set up at Bethlem Royal Hospital, as described by Warren (1952) and Cameron (1953). It has provided special facilities for youngsters requiring psychiatric investigation and treatment, living as a group under the care of appropriate staff. Adolescents suffering from a wide variety of psychiatric disturbances have since been admitted; although some disturbed psychotics or an occasional suicidal adolescent were considered to be better treated in wards for adults and were therefore transferred. Admission to the unit was also considered inadvisable for others, and more suitable disposal was arranged for them; for example, some delinquents unsuitable for treatment in the hospital setting. Those admitted were referred from a variety of sources and were most heterogeneous in their background. Over the years there has seemed to be little change in the kinds of patients admitted and treated, although as the Unit and its limitations became better known referring agents may have exercised more selection; for instance, the number of actively delinquent boys referred appears to have fallen.

Apart from those patients who absconded, a minority stayed for only a few weeks. Most patients were discharged after a stay of some months, whilst a small proportion stayed for a year or longer. Long-term care of chronically ill patients has not been undertaken and once active investigation or treatment has ended, the patient was discharged home in most cases. An occasional patient was transferred on discharge to another hospital; others continued with out-patient treatment at this hospital or, if coming from a distance, at their local hospital or child guidance clinic. In a number of cases social recommendations were made on discharge; a change of school locally, placement as maladjusted in a boarding school; in residential work; or to live with a relative.

The records of the patients treated have built up into a considerable body of clinical material on the psychiatric disorders occurring in adolescence, part of which is analysed here. The value of this is increased by the addition of the subsequent medical and social histories of these youngsters, available from their follow-up, six or more years after discharge from hospital (Warren, 1965).

CASE MATERIAL

The information routinely available from the Unit's patients' records needed to be described in meaningful categories, susceptible to statistical analysis. The material was therefore used in as consistent a manner as possible, discarding that in which this had not proved possible in a pilot study. Of the records of 204 adolescents discharged from the Unit between 1949 and 1953, 17 were not included in the study (8 had absconded after less than four days; 5 had spent most of their time in hospital in adult wards away from the Unit; and in 4 cases the notes were not available). This left 187 patients to be included with an age range of 11 to 19½ years and with a majority in the middle of this range. Boys: number 107 (mean age 14·51 years: S.D. 1·586 years); Girls: number 80 (mean age 14·85 years: S.D. 1·396 years).

DIAGNOSTIC CATEGORIES

These patients were not always easy to categorize psychiatrically in precise diagnostic terms; those who were not psychotic often showed a very mixed picture—a characteristic of many adolescent patients. However, they were grouped by the author into the following psychiatric diagnostic categories (Cameron, 1955):

Neurotic disorders: Patients admitted with a mainly neurotic type of illness (and with no conduct disorders).

Conduct disorders: Patients admitted with conduct disorders (including delinquency).

Mixed neurotic and conduct disorders: Patients admitted with mixed neurotic symptoms and conduct disorders.

Psychotic disorders: Patients admitted with a psychotic illness.

Others: (Other illness). Four patients admitted who could not be categorized as above.

The numbers in each diagnostic category are given in Table 1.

TABLE 1. DIAGNOSTIC CATEGORIES

	Neurotic disorders	Conduct disorders	Mixed neurotic and conduct disorders	Psychotic disorders	Others	Total
Boys	41	16	37	11	2	107
Girls	41	6	17	14	2	80
Total	82	22	54	25	4	187

Total diagnostic categories ('Others' omitted)	Sex difference $\chi^2 = 8{\cdot}52$; d.f. $= 3$; $p < 0{\cdot}05$
Conduct disorders	Sex difference $\chi^2 = 1{\cdot}5$; d.f. $= 1$; N.S.
Mixed neurotic and conduct disorders	Sex difference $\chi^2 = 3{\cdot}1$; d.f. $= 1$; N.S.

Those grouped under *Neurotic disorders* were mostly, and characteristically, varied in their symptoms. Fifteen, for instance, showed a fairly clear cut obsessive-compulsive state and in 3 hysterical symptoms were marked; most gave a mixed picture with anxiety, sometimes depression, hysterical or obsessive features. A few had phobias as well, and in 3 patients this amounted to a phobic state. Two patients showed quite marked anorexia. Apparent defects of personality, mostly inadequacy in varying degree, were not uncommon. While often akin to the psychiatric disorders of adults, the syndromes presenting were on the whole less well defined.

Many symptoms and syndromes typical of younger children were seen, and were by no means confined to the younger of these patients. They comprised behaviour disorders such as enuresis and, in 3 patients, encopresis; speech disorders; overactivity or tics; tension habits and so on. Temper outbursts, sometimes a major cause of complaint, were very common. Continued 'school refusal' was the presenting symptom in some. Disturbed personal relationships within or outside the family circle were very common, as they were in all diagnostic groups.

The small group admitted with *Conduct disorders*, antisocial behaviour of various kinds, whether or not they had been charged in court, were free from any marked neurotic symptoms. Their misconduct was the outstanding feature, and they were admitted to see if psychiatric treatment in the Unit would be of help.

The group with *Mixed neurotic and conduct disorders* showed various kinds and severity of neurotic symptoms and also at least one kind of conduct disorder. They were a very mixed group showing many of the symptoms described among the neurotic group, but in addition they were all in some respect antisocial. A number again showed continued 'school refusal'.

The group labelled *Psychotic disorders* included 4 cases of childhood psychosis now reaching adolescence; 5 were diagnosed as manic-depressive; and 2 showed a mixed schizo-affective picture. The remaining 14 were schizophrenic, either of insidious onset, or with a clear-cut onset and florid symptoms developing at or after puberty.

The 4 patients grouped as *Others* included 1 subnormal; 1 subnormal with brain damage; 1 with marked brain damage; and finally 1 patient not diagnosed. He had had recurrent psychotic episodes, not seen while in hospital.

A number of psychiatric syndromes were thus included in this series. It was not possible to sub-divide them further to any effect for purposes of analysis, due to the many patients who showed very mixed syndromes.

PERSONAL HISTORIES

Previous history of physical ill-health

This was judged and graded according to its kind, severity and continuity in *physical* terms, the usual childish infections being ignored. (The author, Dr. L. Stein and Mrs. J. E. M. Feldmar judged and graded these independently, and then reached agreement. The same method was used for all assessments dependent on a subjective judgement.) The illnesses noted varied widely and their effect on the present psychiatric illness could not be assessed, although it sometimes seemed to be relevant or occasionally to be a precipitating factor. They included such conditions as a fractured skull, a fractured spine, recurrent bronchitis or pneumonia, lung abscess, acute rheumatism and chorea, nephritis, septicaemia, recurrent minor ill-health, and so on.

In 11 patients, the records did not allow accurate assessment of previous physical ill-health. Of the 176 patients (103 boys, 73 girls) known, 76 (43 per cent) had had ill-health and in 52 (30 per cent) of the total it was mild. Six (3 per cent) had a severely abnormal history and 18 (10 per cent) a moderately abnormal history. There was no age trend and little sex difference. A history of physical ill-health of all grades was highest, amounting to 38 out of 79 known (48 per cent), among those admitted with *Neurotic disorders*, with a sex trend towards the girls, compared with 38 out of 97 known (39 per cent) amongst other diagnostic groups. The difference was highly significant ($\chi^2 = 8{\cdot}43$; d.f. $= 1$; $p < 0{\cdot}01$).

Incidence of symptoms of emotional disturbance from ages 1 *to* 5 *years*

It was too uncertain to attempt to judge retrospectively the presence of any symptoms pointing to emotional disturbance in the first year of life. However, parents were able to recall and describe more clearly any symptoms between the age of one and five years. They varied considerably in kind and in severity and, using Cameron's classification (1955), could be described as mainly reactive in type. They included primary habit disorders (disturbance of eating, sleeping and elimination), secondary habit disorders (gratification or tension habits), motor symptoms (such as over-activity), disturbances of personal relationships (attention seeking, jealousy reactions, over-dependence, temper tantrums and the like), and conduct disorders (destructiveness, wandering and others). So variable were they that it was decided not to analyse them according to the types of symptom shown, but to take them in the aggregate and grade them according to severity, the three grades being "mild", "moderate", and "severe", according to how much upset they caused. Those considered "mild" should be accepted with caution, in view of the probable high incidence of minor reactive symptoms in the child population in general (Kanner, 1960). In any case, the grading decided upon depended in the first place on parents' reports.

Of the 187 patients, in 22 the early history could not be adequately assessed. Among the remaining 165 (94 boys, 71 girls), in 53 (37 boys, 16 girls) (32 per cent) the reported symptoms were graded "mild"; in 17 (11 boys, 6 girls) (10 per cent) they were graded as "moderate"; and in 6 (5 boys, 1 girl) (4 per cent) they were "severe". These last included 2 cases of childhood psychosis, 2 of mental subnormality and 1 of brain damage; all were grossly disturbed early on.

It also appeared that 53 out of 94 boys known (56 per cent), as opposed to 23 out of 71 girls known (32 per cent) had a history of some emotional disturbance in early years. This difference was significant ($\chi^2 = 8{\cdot}43$; d.f. $= 1$; $p < 0{\cdot}01$). However, apart from those graded as "severe", which were in the *Psychotic disorders* and *Others*, there was little difference in the incidence between different diagnostic groups.

Incidence of symptoms of psychiatric disturbance after the age of 5 *years, but before the present illness* (*excluding conduct disorders*)

Although a complete separation from disturbance showing in the present illness was sometimes difficult when the history began in early childhood, in practice a distinction could usually be made, because a worsening of symptoms was then regarded as heralding the present illness, which became "conspicuous". Symptoms occurring at varying ages previous to the present illness were still mostly reactive in kind, but now included more definite neurotic symptoms and some incidence of 'school phobia'. Conduct disorders (as symptoms) were not included here. Only some of these children received any psychiatric treatment at the time when early symptoms occurred.

TABLE 2. SEVERITY OF PSYCHIATRIC DISTURBANCE BEFORE PRESENT ILLNESS, BUT AFTER AGE 5 YEARS
GRADES OF SEVERITY

Diagnostic categories	None	Mild	Moderate	Severe	Not known	Total
Neurotic disorders	51	20	10	1	–	82
Conduct disorders	15	6	—	–	1	22
Mixed neurotic and conduct disorders	34	16	2	–	2	54
Psychotic disorders	13	3	5	3	1	25
Others	—	1	2	1	–	4
Total	113	46	19	5	4	187

Table 2 shows that of the total of patients where the history was known, 70 (38 per cent) showed previous psychiatric disturbance after the age of 5 years and before the present "conspicuous" illness began; there were no significant sex nor age differences. The incidence as between diagnostic categories showed little difference, except for the 'Psychotic disorders' and 'Others', where the higher incidence of moderate or severe disturbance was accounted for by the cases of childhood psychosis, mental subnormality or brain damage among them.

Pre-admission history of conduct disorders (occurring at any time)

Conduct disorders occurring in the more remote past histories could not be adequately separated from those which occurred as part of the 'present illness', nor could their severity or frequency be assessed. Only the occurrence of different kinds was analysed. They included *Stealing*; *Truancy* (school refusal or phobia was not included here); *Sexual misbehaviour* (not masturbation); *Out-of-hand*, i.e. from 'generally disobedient' up to 'out of control'; and *Other*, including burglary (2 cases), 'acquitted' murder, attempted murder, violence or assault (3 cases), incendiarism (3 cases) and forgery. The various types of conduct disorder sometimes occurred alone, but in a large number of cases there was a record of two, and in another sizeable group of three or even four types. There was a significant sex difference; 43 out of 107 known (40 per cent) of boys had no conduct disorders and 54 out of 80 known girls (68 per cent) had none. ($\chi^2 = 12{\cdot}61$; d.f. $= 1$; $p < 0{\cdot}01$.)

The *Neurotic disorders* had only 7 boys and 3 girls (12 per cent) with reported conduct disorders at some time, nearly all truants. Of the *Psychotic disorders* and *Others* only 4 (14 per cent) had reported conduct disorders at some time. Thus they were in the main confined to those grouped as *Conduct disorders* or *Mixed neurotic and conduct disorders*, of whom all by definition had shown at least one conduct disorder.

Stealing was the commonest, with 52 cases (36 boys, 16 girls), in half of whom it was serious. Truancy was almost as common, occurring in 45 cases (33 boys, 12 girls), in about half of whom it was serious. There was marked overlap between stealing and truancy. Twenty-five were 'out of hand' (15 boys, 10 girls) and nearly always seriously so. Sexual misbehaviour of some kind had been reported in 19 (16 boys, 3 girls). This may be more likely to lead to admission to a psychiatric unit in boys than in girls, whose sex offences usually mean promiscuity which is more likely to be dealt with otherwise by a court.

Pre-admission record of court charges

A proportion of those who had shown conduct disorders had been charged in court for various offences at some time prior to admission. Ignoring the very few minor charges: amongst the *Conduct disorders*, 6 (4 boys, 2 girls) had two or more court appearances; 8 (6 boys, 2 girls) had been on probation; 3 boys had been in approved schools and 1 boy in prison. Amongst the *Mixed neurotic and conduct disorders*, 8 boys had two or more court appearances, 10 (4 boys, 6 girls) had been on probation and 4 (3 boys, 1 girl) in approved schools.

The length of present illness before admission

The age at which the present illness had begun was variable. In only about one third of the patients was the onset clear cut; on the other hand, in some there had been continuing evidence of psychiatric disturbance of some or other kind through the various stages of childhood. It was therefore decided to estimate the length of the conspicuous psychiatric illness that led to admission, i.e. at what age a definite illness or disordered conduct began, after previous normality; the age at which symptoms became enhanced to the extent that they were now regarded as a definite illness; or a new range of symptoms developed which had not previously been present; any of these alternative developments leading to admission.

The following points can be concluded from Table 3: There was a significant sex difference by age for all diagnostic categories combined for the age of onset of the present illness ($p < 0{\cdot}05$) with more boys showing evidence of early onset, but the sex difference were not significant for the separate diagnostic categories.

Neurotic disorders: In very few cases (5) did the present illness become conspicuous below the age of 5 years; in 9 more it began before 10 years; the numbers increased markedly at every year from 10 years on up to puberty.

Conduct disorders: In just a quarter the present disturbance began before the age of 10 years; in three quarters it began from the age of 10 years onwards.

Mixed neurotic and conduct disorders: Here the onset was fairly evenly spread through all age levels, there being a slightly increased frequency among the younger ages of onset and from 12 years onwards.

Psychotic disorders: 2 of the childhood psychoses began before the age of 5 years, another before 10 years and a further one before 12 years. The rest all developed psychotic illness from 12 years onwards, i.e. at or after puberty.

Others: 3 of these children's mental subnormality or brain damage dated back to early life.

TABLE 3. AGES AT ONSET OF PRESENT OR 'CONSPICUOUS' ILLNESS

		Ages at onset						
Diagnostic categories		1–5 years	5–10 years	10–12 years	12–14 years	14–17 years	Not known	Total
Neurotic disorders	T	5	9	23	26	15	4	82
	M	4	4	13	9	9	2	41
	F	1	5	10	17	6	2	41
Conduct disorders	T	1	4	7	6	3	1	22
	M	1	3	6	3	3	–	16
	F	–	1	1	3	–	1	6
Mixed neurotic and conduct disorders	T	7	18	7	14	4	4	54
	M	6	15	5	9	1	1	37
	F	1	3	2	5	3	3	17
Psychotic disorders	T	2	1	1	13	6	2	25
	M	1	1	1	4	2	2	11
	F	1	–	–	9	4	–	14
Others	T	3	–	–	1	–	–	4
	M	1	–	–	1	–	–	2
	F	2	–	–	–	–	–	2
Total	T	18	32	38	60	28	11	187
	M	13	23	25	26	15	5	107
	F	5	9	13	34	13	6	80

T = Total M = Male F = Female

Ages at onset:

Diagnostic categories combined	Sex difference $\chi^2 = 10{\cdot}5$; d.f. $= 4$; $p < 0{\cdot}05$
Neurotic disorders	Sex difference $\chi^2 = 3{\cdot}7$; d.f. $= 3$; N.S.
Conduct disorders	Sex difference $\chi^2 = 1{\cdot}4$; d.f. $= 1$; N.S.
Mixed neurotic and conduct disorders	Sex difference $\chi^2 = 4{\cdot}2$; d.f. $= 3$; N.S.
Psychotic disorders	Sex difference $\chi^2 = 1{\cdot}1$; d.f. $= 1$; N.S.

Ages at onset:

(Sexes combined) as between: Neurotic disorders and conduct disorders + mixed neurotic and conduct disorders
$\chi^2 = 17{\cdot}85$; d.f. $= 8$, $p < 0{\cdot}05$

as between: Non-psychotic disorders (combined) and psychotic disorders
$\chi^2 = 12{\cdot}1$; d.f. $= 4$; $p < 0{\cdot}02$

The age of onset of the present or conspicuous illness was therefore comparatively short or intermediate more often among those with *Neurotic disorders*, and tended to be longer among those with *Conduct disorders* or *Mixed neurotic and conduct disorders*. These differences were significant ($p < 0{\cdot}05$). In coming to a retrospective judgment of the length of the present illness, conduct disorders may have been more conspicuous than neurotic symptoms. There was also a significant difference ($p < 0{\cdot}02$) between the ages of onset as between those with Non-Psychotic disorders and those with Psychotic disorders. The onset of both *Neurotic* and *Psychotic disorders* was particularly common in girls of 13 years.

ADMISSION TO HOSPITAL

Personal characteristics

Socio-economic status. This had to be confined to the current situation at admission and the following were examined:

(a) The family's financial circumstances: middle class, average working class, or poorer (Registrar General 1960).

(b) General condition and amenities of the house: good or average, below average, very bad; as judged from the account of the living conditions at home given by the patients' informants.

(c) Statutory overcrowding of the family and of the patient personally.

Of the 173 families (the other 16 adolescents were from institutions or temporary foster homes), the circumstances of 24 could not be adequately assessed. Of the remaining 149 families, 32 (22 per cent) were financially middle class, 102 (69 per cent) average working class and 15 (10 per cent) poorer. One hundred and two (68 per cent) of the families were living in good or average houses, 34 (23 per cent) in below average houses, and 15 (10 per cent) in very bad houses. Twenty (13 per cent) of the families were overcrowded, and personal overcrowding of the patient was noted in 33 (22 per cent) of the patients. Thus the conditions of these families was perhaps a bit above the national average (Tizard and Grad, 1961).

Physique. The assessment of physique was made on the basis of routine measurement of height and weight on admission, and compared with the "norms" calculated for L.C.C. school children for the relevant years (1955, L.C.C. Report).

Of the 187 adolescents, the height and weight were not known in 32 boys and 22 girls. The 75 known boys followed the normal curves of deviation from the average. Among the 58 girls, however, there was a preponderance of below-average physique accounted for almost entirely by those with *Neurotic disorders*. The implication of this finding cannot be decided as in 25 per cent of the girls, the height and weight were not known.

Sexual maturity. With few exceptions, the levels of maturity corresponded to the normal curve of maturation (Provis and Ellis, 1955). The exceptions were one pre-pubertal boy of between 17½ and 18 years and two pre-pubertal girls aged 15 and 15½ respectively.

Levels of intelligence. These were closely similar to those in the general population for both boys and girls; two thirds in the average range (I.Q. 85–115) and the bulk of the remainder were equally distributed between the 'low' (I.Q. 70–84) and the 'high' (I.Q. 115–129) ranges. In the 'very low' range, (I.Q. 69 or lower, more than two standard deviations below the mean), apart from 6 brain damaged, psychotic, or mentally sub-normal patients, there were only 3 youngsters. In the 'very high' range (I.Q. 120 or above, more than two standard deviations above the mean) there were 4 patients. There were no significant differences in the range of intelligence as between diagnostic categories, but 3 of the 'very high' were among the neurotics.

Electro-encephalographic records. These were normal in 54 of 96 boys (56 per cent) with known EEG, 'doubtfully abnormal' in 26 (27 per cent), and 'definitely abnormal' in 16 (17 per cent). In 49 of 70 girls (70 per cent) they were normal, in 17 (24 per cent) 'doubtfully abnormal', and in 4 (6 per cent) 'definitely abnormal'.

Abnormalities were evenly distributed as between ages and between the diagnostic categories. No significance could be attached to those labelled 'doubtfully abnormal', in view of the uncertainty that in general applies to EEG findings in children and to maturation in EEG terms (Pond, 1963).

Those definitely abnormal included non-specific abnormalities in 10 cases, epileptoid dysrhythmia' in 6 cases, epileptic dysrhythmia in 2 cases and bilateral abnormal temporal foci in 2 cases. They were regarded as a handicap to the particular patients but without prognostic implication except in established epileptics. The totals were too small to allow any further conclusions to be drawn.

Physical handicaps. Various physical handicaps were noted in some patients at admission. They included defects of vision, deafness, obesity, pes planus, scoliosis, undescended testis and so on. The finding of an epileptic dysrhythmia on EEG was also included as a handicap. Any might have interfered with healthy psychological development or influence the patient's illness. They were graded according to estimated severity in physical terms, as mild, moderate, or severe, as shown in Table 4.

TABLE 4. PHYSICAL HANDICAPS AT ADMISSION

		Boys	Girls	Total
Physical handicap grades	None	60	60	120
	Mild	33	16	49
	Moderate	8	4	12
	Severe	6	–	6
	Total	107	80	187

Sex difference: $\chi^2 = 7{\cdot}71$; d.f. $= 2$; $p < 0{\cdot}05$.

Table 4 shows that among boys, 33 out of 107 (30 per cent) had mild physical handicaps and 8 (13 per cent) moderate or severe handicaps; among girls, 16 out of 80 (20 per cent) had mild physical handicaps and only 4 (5 per cent) had moderate handicaps. Thus there was a significant sex difference ($p < 0{\cdot}05$). There were in fact no age trends in either sex and no marked differences between diagnostic groups, except among the *Psychotic disorders* among whom there were no moderate or severe handicaps, and fewer slight handicaps.

Severity of psychiatric illness on admission

Because of the adolescent unit's function to observe and investigate youngsters in a controlled setting away from home, as well as to treat them, a number of patients were admitted who were not seriously ill. In practice, all had some treatment, so that no division into non-treatment and treatment cases was desirable. All patients, including those with conduct disorders, were therefore graded in terms of their need for psychiatric treatment, but any antisocial behaviour as such was excluded in judging the severity of their psychiatric illness. Some patients were antisocial rather than ill. The grades of severity were as follows:

Grade 1. No psychiatric treatment considered necessary.
Grade 2. Psychiatrically ill enough to require treatment from a non-specialist (general practitioner).
Grade 3. Psychiatrically ill enough to require hospital out-patient or child guidance treatment.
Grade 4. Psychiatrically ill enough to require hospital in-patient treatment.

Table 5 shows that *Psychotic disorders* were most severely ill by these criteria, and next the *Neurotic disorders*. Those with *Conduct disorders* were the least ill; the reasons for their admission were mainly their antisocial behaviour.

TABLE 5. GRADES OF SEVERITY OF PSYCHIATRIC ILLNESS ON ADMISSION

	Diagnostic categories																							
	Neurotic disorders				Conduct disorders				Mixed neurotic and conduct disorders				Psychotic disorders				Others				Total			
Grades of severity	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Boys	–	–	5	36	–	5	6	5	–	–	12	25	–	–	–	11	–	–	–	2	–	5	23	79
Girls	–	–	8	33	–	4	2	–	–	–	6	11	–	–	–	14	–	–	1	1	–	4	17	59
Total	–	–	13	69	–	9	8	5	–	–	18	36	–	–	–	25	–	–	1	3	–	9	40	138

Key: Illness grades: 1 No psychiatric treatment considered necessary.
2 Psychiatrically ill enough to require treatment from a non-specialist (General practitioner).
3 Psychiatrically ill enough to require hospital out-patient or child guidance treatment.
4 Psychiatrically ill enough to require hospital in-patient treatment.

Adult or child type psychiatric syndrome

These patients had a comparatively wide range of age and maturity, so they were grouped also according to whether their symptoms or syndromes were 'adult' in type; typical of the symptoms seen in psychiatrically ill adult patients; for example, conditions such as anxiety state, hysteria, obessional neurosis or anorexia nervosa, sex interference with girls, etc.: or 'childish': typical of those symptoms shown by younger child patients; for example, conditions such as encopresis, school refusal with habit disorders, truancy, 'out of control' etc. A number showed both 'adult' and 'childish' symptoms and were grouped as 'mixed' type.

Table 6 shows that there was a slight but not significant tendency for the 'adult' type syndrome to be more frequent among girls.

The incidence by age band and by diagnostic category is given in Fig. 1.

TABLE 6. PSYCHIATRIC SYNDROME TYPE

	Child type	Mixed type	Adult type	Total
Boys	59	26	22	107
Girls	38	17	25	80
Total	97	43	47	187

Sex difference $\chi^2 = 2{\cdot}78$; d.f. $= 2$; N.S.

No patients below the age of 12½ years showed an 'adult' type syndrome, but it became commoner among those of 14 years and upwards. Of those with a 'child' type syndrome 49·5 per cent were below the age of 14½ years and 50·5 per cent above that age, including 5 above the age of 17 years. Of those with a 'mixed' type of syndrome, 58 per cent were above 14½ years and 42 per cent below.

By diagnostic categories there were no significant differences by age band. However, with age bands combined, there were highly significant differences for syndrome type as between diagnostic categories. There was little difference between the *Conduct disorders* and *Mixed neurotic and conduct disorders*, where the 'child' type

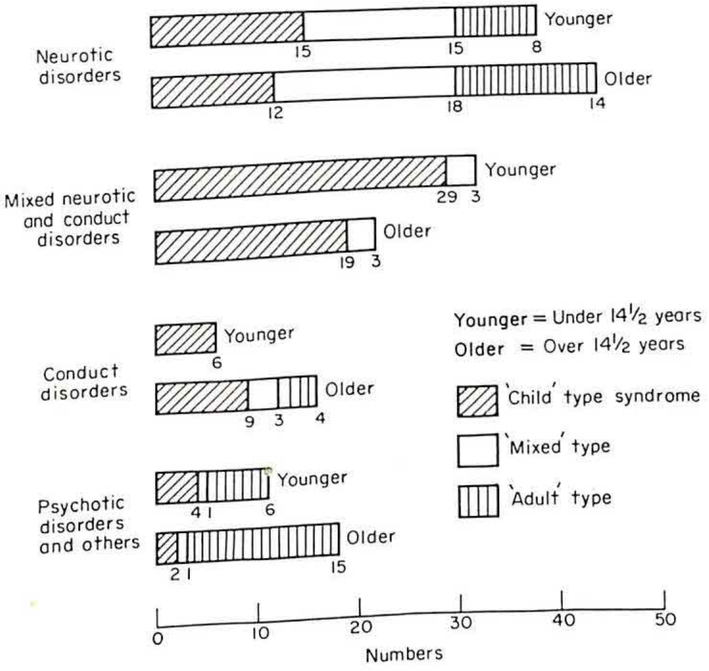

FIG. 1. Diagnostic category by age band and syndrome type (sexes combined). Child syndrome type: Age band difference by diagnostic categories $\chi^2 = 2{\cdot}22$; d.f. $= 3$; N.S. Adult syndrome type: age band difference by diagnostic categories $\chi^2 = 2{\cdot}16$; d.f. $= 3$; N.S. Age bands combined: syndrome types (child, mixed and adult) by diagnostic categories $\chi^2 = 84{\cdot}26$; d.f. $= 6$; $p < 0{\cdot}001$.

syndrome occurred in the great majority. Together, they differed from the *Neurotic disorders* in which there was a predominance of the 'mixed' syndrome type; and again from the *Psychotic disorders* and *Others* combined, in which the 'adult' type syndrome predominated. There was therefore a trend from the *Conduct disorders* and *Mixed neurotic and conduct disorders* with a 'child' type syndrome predominant, through the *Neurotic disorders* with a 'mixed' type syndrome, to the *Psychotic disorders* with an 'adult' type syndrome predominant. (Only those with childhood psychosis or who were mentally sub-normal were exceptions.)

DISCHARGE FROM HOSPITAL

Treatment in hospital

Whatever the diagnosis, treatment in hospital included the therapeutic influence of living in a group situation among other patients and the various members of staff. The pharmacological and physical treatments available between 1949 and 1953 were used as appropriate. Individual psychotherapy ranged from supportive to fairly intensive therapy. Education while in hospital was continued for all those able to participate, and sometimes this amounted to remedial education. Any detrimental factors in the patient's home background or in the school situation were if possible corrected; the former being easier for those who lived nearer the unit.

Duration in hospital

Once investigation or treatment had been completed and it was felt that maximum benefit had been gained from being in hospital, arrangements were made for the patient's discharge and disposal.

Apart from those who absconded or who were self-discharged against advice, the length of stay in hospital varied widely; the unit did not cater for long-term care. In all diagnostic groups about one quarter stayed under six months; just under one third between nine months and two years; 2 only stayed longer than two years. There were no sex differences. There was a slight tendency for a higher proportion of those with *Neurotic disorders* to spend less than six months in hospital compared with other diagnostic groups; and a slight tendency for those with *Psychotic disorders* to spend a longer time than any other diagnostic group; over 6 months or over 1 year.

Severity of psychiatric illness on discharge

Patients were discharged according to their individual circumstances. For instance, some were admitted mainly for investigation, while in others discharge was delayed because of difficulties over placement. Thus the severity of illness shown by patients at discharge could not be considered dependent on the length of treatment in the unit. They were graded as on admission by the severity of psychiatric illness shown at discharge (again excluding conduct disorders from consideration) as shown in Table 7.

Comparison of Table 7 with Table 5 shows that there was a significant over-all shift towards normality for all diagnostic groups, sexes combined ($p < 0\cdot01$). This shift was not significant for boys alone, but was significant for girls alone ($p < 0\cdot01$). However, 25 (30 per cent) of the *Neurotic disorders* and 15 (28 per cent) of the *Mixed*

TABLE 7. GRADES OF SEVERITY OF PSYCHIATRIC ILLNESS ON DISCHARGE

	Diagnostic categories																							
	Neurotic Disorders				Conduct disorders				Mixed neurotic and conduct disorders				Psychotic disorders				Others				Total			
Grades of severity	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Boys	11	16	12	2	4	10	2	–	10	13	14	–	1	2	2	6	1	–	1	–	27	41	31	8
Girls	8	22	8	3	2	4	–	–	4	12	1	–	5	–	4	5	–	1	1	–	19	39	14	8
Total	19	38	20	5	6	14	2	–	14	25	15	–	6	2	6	11	1	1	2	–	46	80	45	16

Key: illness grades:
1 No psychiatric treatment considered necessary.
2 Psychiatrically ill enough to require treatment from a non-specialist (General practitioner).
3 Psychiatrically ill enough to require hospital out-patient or child guidance treatment.
4 Psychiatrically ill enough to require hospital in-patient treatment.

Shift towards normality as between tables 5 and 7
Overall shift, sexes combined $\chi^2 = 16{\cdot}16$; d.f. $= 3$; $p < 0{\cdot}01$.
Overall shift, boys only $\chi^2 = 7{\cdot}45$; d.f. $= 3$; N.S.
Overall shift, girls only $\chi^2 = 14{\cdot}04$; d.f. $= 2$; $p < 0{\cdot}01$.

neurotic and conduct disorders were still moderately or seriously ill on discharge. Eleven (44 per cent) of the *Psychotic disorders* were still seriously ill on discharge and 6 (24 per cent) were moderately ill, and the immediate results of treatment of psychotics in the unit were poor. The occurrence of conduct disorders or antisocial behaviour in the hospital could not be measured.

Prognosis made at discharge

A prognosis was attempted as a routine by the registrar and recorded on the case sheet. This was individual and varied widely, and it was uncertain whether it referred to the immediate or more remote future. Furthermore, it may have depended in some cases on whether or not recommendations for disposal at discharge could be carried out. Prognostic statements at discharge were therefore graded as follows: good—definite; good—qualified; neutral—no definite prognosis given; bad—qualified; bad—definite; and are shown in Table 8.

As a whole, no significant differences in the prognosis made were found as between boys and girls, nor between those of the younger and older age levels. By diagnosis: *Neurotic disorders* were given a 'good' or 'qualified good' prognosis in 37 (45 per cent) and in 24 (29 per cent) a 'neutral' prognosis. *Conduct disorders* were given a 'good' or 'qualified good' prognosis in 8 (36 per cent) and a 'neutral' prognosis in 10 (45 per

TABLE 8. PROGNOSIS AT DISCHARGE

Diagnostic categories		Good def:	Good qual:	Neutral	Bad qual:	Bad def:	Total
Neurotic disorders	T	15	22	24	7	14	82
	M	6	13	10	5	7	41
	F	9	9	14	2	7	41
Conduct disorders	T	3	5	10	3	1	22
	M	2	3	8	2	1	16
	F	1	2	2	1	–	6
Mixed neurotic and conduct disorders	T	2	23	10	12	7	54
	M	2	16	7	7	5	37
	F	–	7	3	5	2	17
Psychotic disorders and others	T	1	3	6	3	16	29
	M	–	1	3	1	8	13
	F	1	2	3	2	8	16
Total	T	21	53	50	25	38	187
	M	10	33	28	15	21	107
	F	11	20	22	10	17	80
Younger under 14½ years		11	28	26	10	13	88
Older under 14½ years		10	25	24	15	25	99

Total diagnostic categories	Ses difference χ^2 = 1·51; d.f. = 4; N.S.
Neurotic disorders	Sex difference χ^2 = 3·28; d.f. = 4; N.S.
Conduct disorders	Sex difference χ^2 = 0·40; d.f. = 2; N.S.
Mixed neurotic and conduct disorders	Sex difference χ^2 = 0·76; d.f. = 3; N.S.
Psychotics and others	Sex difference χ^2 = 1·03; d.f. = 3; N.S.
	Age band difference χ^2 = 4·46; d.f. = 4; N.S.

cent). *Mixed neurotic and conduct disorders* were given a 'good' and 'qualified good' prognosis in 25 (46 per cent) and a 'bad' or 'qualified bad' prognosis in 19 (35 per cent). *Psychotic disorders* and *Others* were given a 'bad' or 'qualified bad' prognosis in 19 (66 per cent). There were no significant sex differences by diagnosis.

Recommendations for immediate disposal at discharge

In-patient treatment in the unit was in many instances one phase in the long-term care of these adolescents; therefore, a number of recommendations were made for further disposal and treatment after discharge and efforts were made to see that they were carried out.

The recommendations were either for further psychiatric treatment, for social placement, or for both. They were categorized as follows:

N. No recommendations. The patient usually returned home.
P. Placement in foster home or hostel.
Q. Boarding school (usually as maladjusted).
R. Further hospital out-patient or child guidance supervision or treatment.

S. Admission to some kind of psychiatric hospital.
T. Approved school training, through the court.
N.K. Not known.

Apart from recommendations for further hospital in-patient treatment, a residential placement of some sort was recommended for 36 per cent of all patients admitted, while further out-patient or child guidance supervisory treatment was recommended for 55 per cent. There were no significant differences between the sexes. More among the younger patients were recommended for residential placement of some sort, but there was an equal emphasis on social and psychiatric recommendations. Among older patients there was very little emphasis on social recommendations.

By diagnosis, a recommendation for residential placement was infrequent among the *Neurotic disorders*, but further psychiatric supervision was recommended in 55 per cent. On the other hand, recommendations for placement in approved school, hostel, foster home or boarding school were made in 54 per cent of those admitted with *Conduct disorders* or *Mixed neurotic and conduct disorders*. Twenty-six per cent of these were recommended for further psychiatric supervision. In *Psychotic disorders* and *Others* a recommendation for transfer to another hospital was made in 31 per cent.

Whether or not immediate recommendations for disposal were carried out

How far the recommendations were carried out depended mostly on the agreement of the parents, unless the child was in care. Figure 2 gives the proportions carrying out the different kinds of recommendations.

SUMMARY OF FINDINGS

The clinical histories and hospital findings of 187 patients (107 boys, 80 girls) admitted between 1949 and 1953 to the adolescent unit at Bethlem Royal Hospital were examined. Cases were categorized as having *Neurotic disorders*, *Conduct disorders*, *Mixed neurotic and conduct disorders*, *Psychotic disorders* and *Others*, and the findings in each compared.

Those with *Neurotic disorders* had a previous history of physical ill-health in

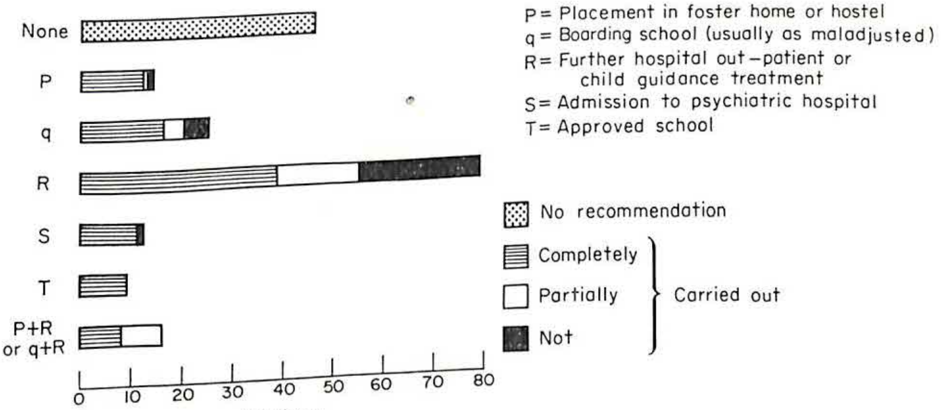

FIG. 2. Recommendations made at discharge and whether carried out.

nearly one half compared with just over one third in other diagnostic groups. Among all diagnostic groups, a significantly higher proportion of boys than girls had a history of some emotional disturbance between the ages of 1 and 5 years. After the age of 5 and prior to the present illness, there was again a history of psychiatric disturbance (excluding conduct disorders) in around one third of patients in all diagnostic categories; it was higher and more severe among the *Psychotic disorders*, because this group included 4 cases of childhood psychosis. The age of onset of the present illness leading to admission varied widely. In the majority of those with *Neurotic disorders* it began from 10 years on; as also in three quarters of those with *Conduct disorders*. In those with *Mixed neurotic and conduct disorders*, the onset was fairly evenly spread through all age levels. In the *Psychotic disorders*, apart from the few with childhood psychosis which began early on, all developed a psychosis from 12 years onwards.

At admission, the age range was 11 to 19½ years; the mean age being 14·54 years for boys and 14·85 years for girls. Their social-economic status was on average slightly above that of the general population; their physique, degree of maturity and levels of intelligence all followed the normal curves of deviation from the average. Thus apart from their illness they did not differ from the general population of adolescents in these respects. Significantly more boys than girls were found to have physical handicaps of varying severity. The severity of their psychiatric illness at admission varied. The syndromes exhibited were categorized as 'childish', 'adult' or 'mixed' types; there were more with a 'childish' syndrome amongst those with *Conduct disorders* and *Mixed neurotic and conduct disorders*, more 'mixed' syndromes amongst those with *Neurotic disorders*; 'adult' type syndrome was predominant among the *Psychotic disorders*.

One quarter in all diagnostic groups remained in the adolescent unit under 3 months, just over one quarter under 6 months and most of the rest between 9 months and most of the rest between 9 months and 2 years, with a slight tendency for the *Neurotic disorders* to spend less, and the *Psychotic disorders* to spend more time in hospital compared with other diagnostic groups. At discharge there was a considerable shift towards normality in the severity of their illness, but least so among the *Psychotic disorders*. Medical or social recommendations for disposal were made for a fairly high proportion of patients in all diagnostic groups at discharge; and a number were found subsequently to have failed to carry them out.

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THE EFFECTS OF SUPPLEMENTARY VERBAL STIMULATION ON A GROUP OF INSTITUTIONALIZED INFANTS*

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ADEQUATE perceptual stimulation early in life seems necessary for normal functioning in many species (Hebb, 1958). It may well be that the deterioration found in many children who have been institutionalized is the result of general perceptual deprivation rather than maternal deprivation, at least in those cases in which the maternal separation occurs before the child has become emotionally attached to its mother (Casler, 1965a).

In one recent study (Casler, 1965b), it was found that twenty minutes per day of supplementary tactile stimulation, administered impersonally over a ten-week period, resulted in higher levels of functioning in a group of institutionalized infants, as compared to a control group from the same institution. There are many reasons for believing that extra verbal stimulation would also have favorable results. First, Rheingold (1960) found that the infants in a presumably typical institution received far less verbal stimulation than did a control group living at home. It seems reasonable to assume that the more verbal stimulation available (up to some still-unknown limit), the greater the possibilities for imitation and selective reinforcement, and the greater the likelihood for verbal behavior and comprehension to develop normally. For example, Myklebust (1956) writes that "the average infant must be exposed to spoken language for about eight months before he begins to comprehend the speech of others". Thus, the statement by Hurlock (1956) that "the most serious and permanent [effect of maternal deprivation] is in the area of speech development" may be misleading: the causal factor may be not maternal deprivation but merely the absence of verbal stimulation. Winitz and Irwin (1958) have found virtually no relationship between verbal retardation early in life and later verbal functioning; but since "language behavior" is an important component of many developmental tests even during the early months of life, temporary deficiencies in this area can lower test scores, thus helping to perpetuate the usually accepted belief that absence of mother-love necessarily results in intellectual and/or social defects.

Second, verbal stimulation can be regarded more generally as attention-getting, response-eliciting stimulation. Like other forms of perceptual stimulation it serves as an activating agent, without which the organism cannot function properly (see Hebb, 1953). Even for the pre-verbal infant, verbal stimulation is auditory stimulation. While no systematic exploration of the effects of auditory stimulation on the human infant has yet been attempted, Simmons and Lipsitt (1961) did find that the sound of chimes is reinforcing to infants (perhaps only because it constitutes a mild stimulus change).

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A third reason for studying the effects of verbal stimulation is closely related to those just mentioned. In most societies, including our own, mothers provide verbal stimulation to their babies in at least five theoretically distinct contexts: an an incidental activity accompanying feeding, dressing, and other tasks directly involving the child; as an incidental activity accompanying such tasks as house-cleaning that do not directly involve the child; as a primary activity—"talking" to the baby in order to express affection or elicit a smile or other desired response; as a means of lulling the baby into a state of quiescence or sleep; and as a method of socialization, narrowly conceived ("Don't touch that!"). This preliminary study of the effects of verbal stimulation suggests a method whereby the source of stimulation can be regarded as an independent variable, thus paving the way for a more extensive examination of the question of whether institutionalization is invariably harmful.

Ideally, the effects of verbal or auditory stimulation should be studied by methodically varying the stimulation while keeping other relevant variables constant. But such a procedure would require the use of many comparison groups; the institutions available in the United States have populations that are, with very few exceptions, too small and/or transitory for this purpose. Also, such a procedure would require, as a limit, total verbal deprivation. However, this extreme is impracticable in an institutional setting and involves potential danger to the subjects. The experiment described below represents, therefore, only a partial test of the hypothesis that increasing the amount of verbal stimulation received by a group of infants will result in improvements in functioning, as measured by the Gesell scale.

Subjects

The initial sample consisted of the 26 youngest inmates of the Hebrew Kindergarten and Infants Home, Far Rockaway, New York. All children were assessed, by means of the Gesell Developmental Schedules, by a qualified psychologist.* In six cases, the tester did not regard the scores obtained as being truly representative of the children's developmental status. Since retesting was not feasible, these six were deleted from the sample. The 20 remaining children were divided into two groups (experimental and control) matched as closely as possible for age, Gesell scores, sex, duration of institutionalization, and age at time of admission to the institution. During the course of the ten-week experiment, four subjects (who did not differ appreciably from the other children on any of the above dimensions) left the institution, necessitating some rematching of those who remained. Table 1 presents data concerning the sixteen subjects in the final sample.

While matching was necessarily imperfect, there were no significant differences between groups for any of the variables shown in the table.

All children in the final sample had been born at full term, were in good physical health, and presented no symptoms of brain damage. Reasons for institutionalization varied, but nearly always had to do with the temporary incapacity of the mother. For example, there were several instances in which the child in question, the latest addition to a family containing five or more young children, could not be properly cared for by the overworked and overburdened mother.

Nearly all of the children were the offspring of middle-class Jewish parents.

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Table 1. Characteristics of final sample

	Control	Experimental
Number	8	8
Male	3	3
Female	5	5
Age, at beginning of experiment (in weeks)		
Range	19–59	6–66
Mean	38·5	34·1
S.D.	14·70	20·32
Age, at time of institutionalization (weeks)		
Range	1–40	0–35
Mean	17·6	8·5
S.D.	13·04	10·82
Number of weeks of institutionalization, at beginning of experiment		
Range	10–43	1–52
Mean	21·6	26·1
S.D.	10·34	18·68
Gesell pre-test scores:		
A. Total D.Q.		
Range	80–104	78–104
Mean	93·9	90·8
S.D.	9·38	8·72
B. Motor D.Q.		
Range	73–112	67–133
Mean	98·4	100·9
S.D.	11·53	19·70
C. Adaptive D.Q.		
Range	81–111	67–100
Mean	93·4	87·2
S.D.	10·20	9·90
D. Language D.Q.		
Range	73–121	60–104
Mean	89·2	82·2
S.D.	15·84	13·96
E. Personal–Social D.Q.		
Range	77–114	78–117
Mean	93·4	91·8
S.D.	10·39	11·18

The testing instrument

The Gesell scale was selected because it yields, in addition to a global "developmental quotient" ("Total D.Q." in Table 3), specific scores for differentiable types of functioning: motor, adaptive, language, and personal-social. This feature permits analysis of the effects of the independent variable with greater precision than is possible with many other instruments. (A detailed account of the forms of behavior evaluated by each sub-test is provided in Gesell *et al.*, 1940.) D.Q.s were computed

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by dividing developmental age (the number of weeks of developmental credit awarded for success on the various items in the examination) by the child's chronological age, and multiplying by 100. Total D.Q. was calculated by finding the mean of the four sub-test D.Q.s.

An intensive study of the forty-week level of the scale, involving hundreds of subjects, led Knobloch and Pasamanick (1960) to conclude that "as a reliable and valid tool for identifying infants with deviations in neurologic or intellectual development, the Gesell Developmental Examination unquestionably holds up". They found a correlation of 0·51 between scores on the forty-week test and scores of the same children on the Gesell scale at the three-year level. In another publication (1962), the same authors report inter-examiner reliability coefficients ranging from 0·82 to 0·96.

The institution

The institution has been described elsewhere (Casler, 1965b) in some detail, and only the more salient features will be reported here.* The Hebrew Kindergarten and Infants Home (HKIH) has a total inmate population of approximately forty, ranging in age from newborns to five years.

The living area is divided into a number of separate or semi-separate rooms, each containing from ten to twelve cribs—five or six on either side of a center aisle. Room assignments are primarily on the basis of chronological age, but a child who is judged to be either precocious or "slow" may be shifted to a room that is deemed more appropriate to his stage of development. As a child grows older, he is moved to the room for children of his new age-level. When such transfers occur, the children are placed in the care of a new set of nurses, since the nurses' assignments are on the basis of rooms. During their free hours, some of the nurses occasionally visit the other rooms and play with the babies who had once been under their care.

The rooms are light, airy, and attractively decorated. Except during sleep periods, nurses speak loudly to one another and to the babies; popular music or ball games issue from radios that are turned on in most of the rooms.

The nurses work eight hours per day, six days per week. Two nurses are usually working in a room at the same time (the average nurse-child ratio thus being 1 : 5), but the hours are staggered so that there are times when three nurses are on duty in a given room, while at other times—e.g., when the babies are asleep—only one nurse will be on duty. It is not unusual for a nurse who has finished her chores to offer her assistance to the nurses in one of the other rooms. Around-the-clock observations were not made, but it seems safe to say that the typical child in HKIH receives the ministrations of at least seven caretakers during a twenty-four-hour period.

Since this experiment involves the administration of supplementary verbal stimulation, an attempt was made to ascertain the amount of verbal stimulation normally received by the children in HKIH, in the absence of experimental increments. The time-sampling method described by Rheingold (1960) was employed, the data from which are presented in Table 2.

There is no mention in Rheingold's report of incidental verbal stimulation from such sources as radio broadcasts. While there are theoretical reasons for believing hat incidental verbal stimulation is not the same, functionally, as direct verbal stimulation—"being spoken to"—only the latter is examined here. Comparisons of the two types of stimulation must await future research.

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*The cooperation of the directors and staff of the Hebrew Kindergarten and Infants Home is hereby gratefully acknowledged.

Children were visited by parents or other relatives very infrequently, mostly because of the rigorous precautions taken by the HKIH staff to protect the children from infections.

TABLE 2. OBSERVATIONS RELATED TO VERBAL STIMULATION OF INFANTS IN THREE ENVIRONMENTS

	Environment. (H: infants observed by Rheingold in their own homes; I: institutionalized infants observed by Rheingold; HKIH: infants observed in Hebrew Kindergarten and Infants Home)		
	H	I	HKIH
No. of infants observed	5	5	5
No. of observations per infant	640 (corrected)	640 (corrected)	640
Period of observation per infant	4 hours (corrected)	4 hours (corrected)	4 hours
Age of infants: mean (months)	3·4	3·5	3·6
range	3·2–3·7	3·2–3·8	2·9–4·3
No. of caretakers: mean	1·4	6·0	4·0
range	1–2	5–8	3–7
Talks: mean (number of times)	55·8	7·8	23·4
range	26–105	0–19	6–43
Talks to infant: mean (number of times)	166·2	17·0	18·4
range	51–310	12–22	12–26

Procedure

A young man and young woman, designated hereafter as "speakers", were trained to administer the verbal stimulation.

After the subjects had been assigned to either the experimental or the control group, as indicated above, each child in the experimental group was given, individually, two daily sessions of supplementary verbal stimulation. A "session" began with one of the speakers approaching the child, standing next to the crib, and saying "Hello, Baby" in a neutral tone, without smiling. (This initial verbal greeting, as will be explained in a moment, controls for the factor of attentiveness. The neutrality in voice and facial expression is necessary in order to minimize the possibility of the subject's responding to "affection" rather than to verbal stimulation.) The speaker then gazed fixedly at the middle portion of the child's body (not the face) and repeated the words "One, two, three, four, five, one, two, three, four, five . . .", in a completely impersonal manner. (Numbers were used in order to ensure equivalent stimulation for each baby in the group. If more meaningful material had been used, it would have had to be read by the speaker; the reading would introduce a new, possibly important, variable.) Once each minute, the counting was interrupted by the words "Hello, Baby".

There was no other interaction between speaker and baby. Each session lasted ten minutes, and there were two such sessions each day (one in the morning, one in the afternoon), five days each week for ten weeks.

Each member of the control group was treated exactly as above, except that the counting was omitted. Thus, every child was approached by one of the speakers, who said "Hello, Baby" at one-minute intervals while focusing his gaze on the child's mid-section during the ten-minute session.

A few additional words of explanation are now in order. If the control group had been ignored completely, any differences that may have developed between the two groups could be attributed to the verbal stimulation received by the experimental group, *or* to the mere physical proximity—with concomitant olfactory, visual, and other stimulation—of the speakers, *or* to a combination of these factors. To control for these latter possibilities, the speakers were required to stand close to the babies in each group. But a person standing silently at the side of a crib would not be able to hold the infant's attention for very long. It is likely that the infant would soon fall asleep or become otherwise occupied, thus eliminating the stimulation coming from the proximity of the "speaker". The periodic utterance of "Hello, Baby" had been found in a previous experiment (Casler, 1965b) to be sufficient to maintain attention. But in order for the counting procedure to be the only independent variable differentiating the two groups, it was necessary that the experimental group also hear "Hello, Baby" at one-minute intervals. The avoidance of looking directly at the baby's face was stipulated in order to reduce the possibility of the baby's responding to social, rather than verbal, stimulation.

Each child was exposed to each speaker for equal amounts of time and received the designated treatment (either experimental or control) as often as every other subject in this group—i.e., one hundred sessions over a ten-week period. Because of the possibility of diurnal rhythms and other temporal factors, a schedule was prepared so that the sessions for each subject were distributed over all the available time segments. Thus, for example, the same child would not be spoken to during the earliest time segment each day.

It was not always feasible to adhere rigidly to the prescribed schedule. The speakers were instructed to postpone working with a sleeping or a fretting child and never to interfere with the nursing staff's caretaking routine. There were, therefore, occasions when particular sessions deviated from the recommended schedule. In a few instances, a session had to be interrupted so that the child could be fed or changed by one of the nurses. Also, a few sessions were interrupted by the child's crying (the speakers were instructed to continue a session if the child began to cry, but to discontinue if the crying did not stop within one minute). Interrupted sessions were resumed as soon as possible, and the speaker noted the event in the detailed report that was submitted to me at two-week intervals. On the basis of these reports, it is clear that deviations from the schedule were few in number and random in nature. To summarize the experimental procedure, each of the eight children in the experimental group received a total of one thousand minutes of supplementary verbal stimulation, administered impersonally by two assistants over a ten-week period.

At the conclusion of the experiment, all subjects were re-tested on the Gesell scale. The tester did not know which child had been assigned to which group, nor did she know (until the testing had been completed) the nature of the experimental manipulation.

RESULTS AND DISCUSSION

Table 3 presents the pre- and post-test scores, and other relevant information, for each of the sixteen subjects.

TABLE 3. D.Q.'S OF ALL SUBJECTS ON ALL PRE- AND POST-TESTS

S's	Age (in weeks)	Motor Pre	Motor Post	Adaptive Pre	Adaptive Post	Language Pre	Language Post	Pers-Soc Pre	Pers-Soc Post	Total D.Q. Pre	Total D.Q. Post
C1	19	105	107	95	107	121	82	94	94	104	98
E1	6	67	94	100	82	67	94	94	100	82	92
C2	19	105	100	84	100	74	81	84	88	87	92
E2	12	133	106	67	114	100	106	117	112	104	110
C3	28	104	112	110	102	86	93	114	108	104	104
E3	19	126	119	94	119	84	113	94	119	100	118
C4	33	73	90	91	107	79	90	97	89	85	94
E4	23	96	97	87	97	104	80	87	90	94	91
C5	48	100	100	92	69	83	66	91	81	92	79
E5	46	87	75	83	75	78	70	78	75	82	74
C6	50	112	100	108	83	108	83	100	90	107	89
E6	48	100	100	92	85	79	67	92	78	91	83
C7	52	88	100	81	81	73	81	77	81	80	86
E7	53	105	100	95	86	86	61	92	74	95	80
C8	59	100	102	86	102	90	80	90	85	92	92
E8	66	93	94	80	88	60	80	80	80	78	86
Mean											
(C)	38·5	98·4	101·4	93·4	93·9	89·2	82·0	93·4	89·5	93·9	91·8
(E)	34·1	100·9	98·1	87·2	93·2	82·2	83·9	91·8	91·0	90·8	91·8

Neither the Wilcoxon test (Siegel, 1956) nor the paired t-test yielded significant differences between post-tests for the two groups, nor between post-test and pre-test scores for either group. Most importantly, the differences between pre- and post-tests for the experimental group were not significantly greater than the corresponding differences for the control group. There are several possible interpretations of this failure of the experiment to support the hypothesis.

First, there is the small sample-size. In three of the four sub-tests there was a greater mean increment or a lesser mean decrement in scores from pre-test to post-test for the experimental group than for the control group, and with a larger *N* these differences might well have attained statistical significance. But child-care institutions with large populations are becoming increasingly rare (largely because of the current prejudice against institutionalization). Furthermore, institutional administrators are frequently unwilling to support research of this kind.

Second, it is possible that while there were no clear immediate effects of the experimental treatment, long-term effects might be uncovered by means of a follow-up study. Unfortunately, a follow-up is not feasible. It is clear that when children leave HKIH, their parents (or foster parents) do not, in general, wish to be reminded of the past, and will not permit a testing program related in any way to the previous history of institutionalization.

Third, the independent variable consisted of a particular type, duration, and intensity of verbal stimulation. It is at least conceivable that a more thorough-going introduction of extra verbal stimulation would have had beneficial effects. One obvious modification in the research design would call for one group of *S*'s to receive stimulation more meaningful than that which was provided here. The question remains unanswered as to the effectiveness of verbal stimulation embedded in a social context. The most that can be concluded from the present study is that essentially nonsensical verbal stimulation, administered under conditions that preclude reinforcement of responsive behavior, did not yield significant results.

Fourth, the base rate of verbal stimulation at HKIH was quite high. It is possible that the children were already receiving adequate verbal stimulation from nurses, radios, etc. Since the amount of stimulation attributable to direct verbalizations from the nurses was rather small (see Table 2), perhaps the source of verbal stimulation is less important than the necessity for a certain minimum quantity.

Fifth, of course, is the very real possibility that the hypothesized relationship between supplementary verbal stimulation and enhanced Gesell-scale performance simply does not exist. A large-scale research program is now being projected that will help to determine whether or not the negligible group differences reported here represent nothing more than chance sampling deviations.

While the experiment failed to yield statistically significant differences, the data recorded above do shed additional light on the problem of how to satisfy the needs of infants in institutional settings. For one thing, the absence of positive effects of supplementary *verbal* stimulation emphasizes the importance of *tactile* stimulation during the first year of life. (It will be recalled that in an earlier experiment [Casler, 1965b], very similar in design to this one, and conducted in the same institution, twenty minutes per day of extra handling did result in substantial differences favoring the experimental group, after ten weeks.)

Also, it can be observed that language scores tended to be lower than the other sub-test scores, in keeping with the frequently-repeated observation that institutionalization is most likely to have ill effects in the domain of language.

Finally, it should be noted that the mean total D.Q. for all sixteen subjects was 92·85 on the pre-test and 91·80 on the post-test. These figures are higher than those usually reported for institutionalized populations, perhaps because HKIH provides higher levels of perceptual (including verbal) stimulation for its inmates than does the typical institution. On the other hand, the figures are somewhat lower than the theoretical average—either because of the non-representative nature of the initial sample or because not all of the needs of the children were being adequately met. In any event, it remains clear that further research dealing with methods of improving the lot of institutionalized children is both appropriate and necessary.

SUMMARY

As part of a continuing study of the reasons for the ill effects of institutionalization, eight institutionalized babies were given 1000 minutes of supplementary verbal stimulation. Five days per week, for ten weeks, the subjects heard the words "one, two, three, four, five" repeated in an impersonal fashion in two daily sessions of ten minutes each. At the end of the experiment, these children were compared, by means of the Gesell Scale, with a control group from the same institution. There were no significant differences. Some possible explanations for the apparent ineffectiveness of the independent variable are presented and discussed.

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AN ANALYSIS OF THE LANGUAGE OF FOURTEEN SCHIZOPHRENIC CHILDREN

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INTRODUCTION

THIS paper describes the characteristics of the language of 14 schizophrenic (autistic) children who have been submitted to a detailed behavioural study.

Kanner (1946–47) described the clinical features of the language of 23 children with early infantile autism. He noted that eight were mute but might utter a complete sentence in an emergency situation. The characteristics he reported were echolalia; metaphorical substitution; transfer of meaning through substitute analogy, through generalization (the whole for the part) and through restriction (the part for the whole); literalness; simple verbal negation used as a magical means of protection against unpleasant occurrences; and pronomial reversals, the child referring to himself as "you" and to the person spoken to as "I". This last feature Kanner regarded as pathognomonic of the condition. In the discussion following this paper (1946–47) Despert commented that all these phenomena could be observed in normal children but were then so transitory as to be almost unnoticed.

A different approach to the language abnormalities in childhood schizophrenia was recently reported by Cunningham and Dixon (1961). These workers recorded the verbal productions of an autistic boy aged seven in a standard situation similar to that used by Sampson (1945) and McCarthy (1930) in their studies of the language development of normal children. Both Sampson and McCarthy found that quantitative and qualitative aspects of language were closely related. As children grow older they produce more words, more different words and longer utterances, and their language changes in quality such as the completeness of sentences and the parts of speech used. Adopting Piaget's (1959) functional classification of language into egocentric and socialized, McCarthy found that quantitative changes are closely related to functional changes. Both authors conclude that the total number of words uttered by a normal child in a standard situation is a good index of his general level of language development. It is interesting to note Sampson's observation that strong feeling often increased the motivation of normal children to communicate, and that this improved their standard of verbal expression.

Cunningham and Dixon (1961) observed their autistic boy over a period of six months and analysed his speech both quantitatively and qualitatively in terms of Piaget's functional classification. They found that although the child's language resembled that of a normal 24–30 month old child quantitatively (e.g. in length of utterance and variety of words used), in other respects it was at a much lower level of development particularly in its monotony (i.e. the frequent repetition of phrases),

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the rarity with which questions were asked and information was given, and the frequency of incomplete sentences. Nouns were relatively more common, and egocentric speech more frequently used than in the language of a normal child of 24–30 months. In the course of six months the autistic boy showed progress in language development in terms of some of the criteria established by McCarthy and Sampson.

In the present study, using a different method, it was possible to obtain quantitative data about the verbal productions of a series of autistic children and to relate this to their clinical status. Assessment of the children's language according to a functional classification was also related to clinical status. The language recorded suggested a different functional classification from that used by Cunningham and Dixon. All the language abnormalities described by Kanner were observed in our children.

THE SUBJECTS

The 14 children investigated, 12 boys and 2 girls, were under 8 years of age. They had been diagnosed as suffering from childhood schizophrenia by at least two psychiatrists independently using the criteria of Kanner (1944) and Eisenberg (1956). The diagnosis was arrived at on general clinical grounds. In thirteen cases it was made in the course of referral and screening for admission to the League School for severely disturbed children in Brooklyn, New York. In one case, that of a child in treatment with one of the authors (S.C.), the diagnosis was confirmed by the other author before systematic observations were made. Children with evidence of brain damage were excluded. All children showed gross abnormalities of behaviour apart from their language disorder. These are described elsewhere (Wolff and Chess, 1965).

METHOD

The method of investigation was that evolved by Thomas *et al.* (1963) and used in their longitudinal study of behaviour patterns of normal children. In every case one of the authors (S.W.) obtained a detailed description from the mother of the child's current behaviour in the course of two or usually three interviews, each lasting about two-and-a-half hours. During the interviews systematic questions were asked in a set order, following a protocol, about the child's behaviour in all aspects of daily living, e.g. sleeping, getting to bed, awakening, dressing, eating, toileting, play, reaction to pain, verbalization, awareness of body, reaction to new situations, etc. For every item of enquiry the mother was asked to provide details of the situations presented to the child and of what the child did or said in those situations. Interpretations of possible meaning of behaviour were not accepted as basic data. Instead, the emphasis was on the stimulus presented to the child and his actual response to it, verbal or otherwise. Each behavioural history thus obtained provided between twenty-five and forty pages of typescript. In addition, each child, except the one not yet at school, was observed in the classroom for a consecutive period of one-and-a-half hours. All observations were made by one of the authors (S.W.) before the interviews with the child's mother. During the observation period the observer, who sat in a corner of the room, aimed to write down everything the particular child did and said. Each observation provided ten to twelve pages of typescript.

Before any analysis of data the children were ranked in order of the severity of their illness from 1, the most severely affected child, to 14, the clinically most normal child. This ranking was done by the observer (S.W.) who compared one child with the next, asking herself the question: "which is the more abnormal child?" In practice ranking took account of the emotional contact the child could make, his speech, his educational attainments and his general level of functioning. The ranking procedure was easy to carry out and the reason for this became apparent later: all except one of the behavioural abnormalities subsequently defined were found to vary with each other in severity. A child grossly abnormal in his language behaviour was also grossly abnormal in other areas, such as motility, aimless behaviour, visual avoidance, etc. The one item that did not follow this trend was obsessional behaviour. This was infrequent at both ends of the ranking scale and most frequent in children of intermediate severity of illness (Wolff and Chess, 1965).

History and observation protocols were analysed separately and were compared with each other to obtain a measure of the validity of the mother's reporting. All utterances of the child that appeared between quotation marks were extracted from the protocols. The total number of words, the number of different words and the number of separate utterances were counted. Non-verbal utterances, consisting of articulated and non-articulated noises other than words, were also counted, although in practice it had been found difficult to record these accurately.

Protocols were read through repeatedly in order to arrive at a classification that would provide the best grouping of utterances according to their function in the context in which they appeared.

Comparisons were made between the ranking of the children according to quantitative and qualitative aspects of their language and their ranking according to severity of illness.

Correlations were calculated using Kendall's tau method (1948). Histories varied in length from 25–47 pages (average 39·5) and observations from 9–13 pages (average 11·6). As it was thought that the length of protocol might affect the results, longer protocols favouring the recording of more speech, a correction was applied to the total number of words to correspond to the average length of protocol.

RESULTS

Of the 14 children, 5 (cases 1–5) had no speech or very little; 1 (case 6) had recently lost his speech; 8 (cases 7–14) spoke a great deal; but all showed marked abnormalities of language.

Table 1 presents the quantitative and qualitative analysis of the language recorded in history and observation protocols, in the order of clinical ranking of the children.

(i) *Validity of mothers' reports*

Good agreement was found between the language recorded in the histories and in the observations. Omitting case 5 who was not observed, significant correlations between histories and observations were obtained for the total number of words recorded ($\tau = 0{\cdot}59$, $p < 0{\cdot}005$), the total number of words corrected for length of protocol ($\tau = 0{\cdot}67$, $p < 0{\cdot}001$) and the average length of utterance

TABLE 1. QUANTITATIVE AND QUALITATI

Clinical ranking	Protocol *	Total No. of words	Total No. of words corrected	No. of different words	Av. length of utterance in words	Non-verbal utterances
1	H	1	1	1	1·0	7
	O	0	0	0	0	15
2	H	0	0	0	0	4
	O	2	2−	2	1·0	14
3	H	0	0+	0	0	5
	O	4	4+	3	1·3	12
4	H	4	4−	4	1·3	5
	O	0	0+	0	0	16
5	H	59		41	2·5	7
6	H	123	128	73	3·8	0
	O	2	2−	1	1·0	14
7	H	278	224	92	4·0	2
	O	87	78	58	1·7	12
8	H	292	304	146	4·2	1
	O	51	46	40	3·0	15
9	H	142	151	74	3·1	0
	O	142	127	86	2·4	6
10	H	228	291	101	3·0	0
	O	69	89	45	2·9	9
11	H	364	334	154	4·1	2
	O	138	133	49	3·3	5
12	H	479	450	189	4·6	2
	O	129	166	59	3·3	12
13	H	431	362	149	4·1	0
	O	211	204	95	3·0	7
14	H	408	363	151	5·0	4
	O	195	175	84	4·1	0

*H = history protocol, O = observation protocol.
†Corrected to correspond to a protocol of average length.

ANALYSIS OF LANGUAGE RECORDED

Non-communicative repetition		Communicative repetition		Original communicative speech	Age in months (CA)	Developmental age (DA) according to average length of utterance	DA/CA %
Immediate	Delayed	Commentary	Request				
1	0	0	0	0	56	under 18	32
0	0	0	0	0			
0	0	0	0	0	73	—	—
1	0	0	1	0			
0	0	0	0	0	65	—	—
2	0	1	0	0			
2	0	0	0	1	47	24	51
0	0	0	0	0			
8	3	1	1	11	65	24–30	42 approx.
2	0	3	9	18	76	36–42	51 approx.
1	1	0	0	0			
1	0	16	35	17	79	42	53
2	2	16	7	24			
2	6	11	11	39	74	42	57
6	3	0	2	6			
8	7	15	5	11	77	36	47
3	21	4	1	30			
0	3	9	21	43	61	36	59
2	1	2	2	17			
1	9	6	20	53	79	42	53
4	1	2	2	33			
2	4	10	11	77	75	54	72
5	1	7	1	25			
0	1	9	30	64	72	42	58
5	12	0	2	51			
0	0	1	0	81	70	over 54 §	over 77
1	0	0	0	46			

‡From McCarthy, 1930.

§McCarthy tested children up to 54 months. The average length of utterance for boys of this age was 4·6 words.

($\tau = 0{\cdot}615$, $p < 0{\cdot}005$). Histories and observations were also found to be positively correlated with respect to the number of different words recorded, but agreement was less good and the correlation was less significant statistically ($\tau = 0{\cdot}44$, $p < 0{\cdot}05$). Mothers tended to report fewer different words than were recorded in the observations.

In the two cases where the language recorded in the histories did not correspond to that recorded in the observations, reasons were found for the discrepancies. Case 6 was a child who had recently relapsed and lost his speech. In the classroom he was almost mute and his mother was probably reporting his speech as it had been some weeks before the observation. Case 12 spoke inaudibly at times, and the observer was aware while recording the observations that much of what he said was missed. His mother's account was probably the more accurate.

No significant correlation was found between non-verbal utterances recorded in the histories and observations ($\tau = 0{\cdot}20$, $p > 0{\cdot}1$).

(ii) *Quantitative aspects of language and clinical status*

The total number of words, the number of different words and the average length of utterance were all found to correlate highly with clinical status. There was a steady improvement, in all these aspects of speech, from children ranked clinically as most abnormal (on the basis of their general behaviour, including speech) to those ranked as most normal.

The correlations of total number of words and number of different words with clinical status were based on observation protocols because these were thought to present the more accurate picture. For average length of utterance, histories were used because some of the children's verbal responses in the classroom consisted of naming pictures on request or reading picture-word cards, and this biased the records in favour of single-word utterances. Correlations were as follows: Clinical status and total number of words $\tau = 0{\cdot}74$, $p < 0{\cdot}0005$; clinical status and number of different words $\tau = 0{\cdot}67$, $p < 0{\cdot}001$; clinical status and average length of utterance $\tau = 0{\cdot}71$, $p < 0{\cdot}0001$.

Non-verbal utterances were not correlated with clinical status because it is unlikely that they were recorded accurately. The same difficulties were encountered as for repetitive motor behaviour: it was often impossible to decide where one utterance or behavioural act stopped and another began, and when such repetitive behaviour occurred during much of the observation period the recording of other phenomena took precedence. It should be noted, however, that non-verbal utterances were common in all except the clinically most normal child. They consisted of articulated and non-articulated noises, the most severely affected child producing only vowel sounds.

The only measure on which our data could be compared with McCarthy's for normal children was the average length of utterance. Both Sampson and McCarthy found this measure of language development to correlate with others. Table 1 shows the age of each schizophrenic child (the chronological age) side by side with the age of normal children whose average length of utterance is the same as that derived from the history protocol of the schizophrenic child (the developmental age). The last column of the table presents the latter as a percentage of the former.

The correlation between this level of language development and clinical status is $\tau = 0{\cdot}74$, $p < 0{\cdot}0005$.

(iii) *Qualitative aspects of language*

The functional classification of utterances that best fitted our data was the following:

1. *Non-communicative repetition.* This is speech not apparently directed at another person, conveying no obvious message and serving no evident purpose, the utterances consisting of something the child is known, or can be presumed, to have heard and which he repeats either (a) immediately (this is the phenomenon of echolalia) or (b) at some future time.

Examples

(a) Immediate repetition

Child echoes part of a teacher's utterance in the classroom: "What happened to your . . ." and "mind the teacher".

Child repeats what he hears an actor say on television: "Don't worry, sweetheart, it will all be all right".

(b) Delayed repetition

While playing at home the child is suddenly heard to quote the teacher: "Brucie, I told you not to go there". (Bruce being the name of another child in the class.)

A child repeats during the day what he has heard during calisthenics in the morning television programme: "One, two, three, rest".

After coughing the child repeats what his mother usually says on such occasions: "You must cough in your hand".

2. *Communicative repetition.* This is speech clearly used for communication and directed at another person, but consisting of the exact phrases the child has heard another person use at some time in the past, and which he repeats without changing the grammatical structure of the phrase. The result is that the child's utterance does not make it clear that he views himself as the subject. Pronomial reversal is one example of this abnormality of language. Kanner's "verbal negation" to avoid an unpleasant situation is another. Utterances in this category are of two types, (a) requests and (b) commentary.

Examples

(a) Communicative repetition—requests

"You don't want it", when refusing something offered to him.

"Good-bye", to make a person go away.

"We don't make 'ah', no 'ah' today", when refusing to be examined by the doctor.

"The doctor will go away", said to persuade the doctor to leave.

"Make a cis", to indicate the wish to urinate.

"You want some ice cream, Thomas? Yes, you may", said as a request to his mother to buy him an ice cream.

(b) Communicative repetition—commentary

"The penis gets hard when you touch it but it will go away", said to mother when child experienced an erection, and previously said by mother to reassure child about this.

"Now we are going to have supper", said to mother every night when getting out of the bath, and some long time previously said by mother to child on the same occasion.

"Kids like Keds" (a television advertisement slogan), said to mother repeatedly after she had bought him a pair of Keds shoes.

"We play after we eat", said by child when younger brother was told by parents to sit still at table, the phrase being one previously used by the mother in this situation.

3. *Original, communicative speech.* This is speech directed at another person, conveying a message and grammatically structured, so that despite possible oddities of content and syntax, it is clear the child views himself as subject. This form of speech is not a mere repetition of something the child has heard under similar circumstances, but consists of the expression of an original idea or the use of new phrasing appropriate to the child's particular situation.

Examples

"I want this."

"No, I don't have to", when opposing a request.

"Fix it, fix it, it's broken."

"I'll kill you", said in anger to his mother.

"Look at those stars out there, here come some more stars", said to parents while observing the night sky.

"Look at those mountains", said by child to mother on seeing her breasts.

"I walk on your eyes", said by child on coming into his parents' bed in the morning and "walking" with his fingers over his father's closed eyes.

The last two examples illustrate what Kanner called metaphorical substitution.

"Am I cleaner than the mountain? Am I cleaner than the whole world? Am I the cleanest in the world?" said by a boy who, ever since his first ascent to the top of a mountain, has used this as a standard for comparison not only for height but for other qualities also.

This is an example of transfer of meaning through generalization.

Table 2 shows the frequency with which repetitive (non-communicative and communicative) speech and original, communicative speech were recorded in the history and observation protocols. Children who were almost mute (cases 1–4) used mainly repetitive speech; children with intermediate language development (cases 5–10) tended to use as much or more repetitive than original speech; children with relatively good language development (cases 11–14) used predominantly original speech.

Histories and observations were more highly correlated with respect to the ratio of original to repetitive speech ($\tau = 0\cdot71$, $p < 0\cdot002$) than with respect to the ratio of communicative to non-communicative speech ($\tau = 0\cdot54$, $p < 0\cdot01$). Similarly, clinical status was more highly correlated with the ratio of original to repetitive speech, as recorded in the observations ($\tau = 0\cdot78$, $p < 0\cdot001$), than with the ratio of communicative to non-communicative speech ($\tau = 0\cdot54$, $p < 0\cdot01$). Our category of non-communicative speech corresponds very closely to McCarthy's category egocentric speech which was also used by Cunningham and Dixon. Our findings suggest that the proportion of repetitive speech is a better index of the severity of illness in schizophrenic children than is the proportion of non-communicative speech.

TABLE 2. REPETITIVE AND ORIGINAL SPEECH AND PROPORTION OF QUESTIONS ASKED

Clinical ranking	Protocol *	Repetitive speech	Original speech	No. of utterances	No. of questions	% Questions	Av. length of utterance	% Questions asked by normal children †
1	H	1	0	1	0	—	1·0	10·8
	O	0	0	0	—	—		
2	H	0	0	0	—	—	—	—
	O	2	0	2	0	—		
3	H	0	0	0	—	—	—	—
	O	3	0	3	0	—		
4	H	2	1	3	0	—	1·3	13·9
	O	0	0	0	—	—		
5	H	13	11	24	1	4·2	2·5	9·7
6	H	14	18	32	1	3·1	3·8	9·7
	O	2	0	2	0	—		
7	H	51	17	69	0	—	4·0	9·7
	O	27	24	51	1	2·0		
8	H	30	39	69	0	—	4·2	9·7
	O	11	6	17	1	6·0		
9	H	35	11	46	2	5·0	3·1	13·2
	O	29	30	59	0	—		
10	H	33	43	76	1	1·5	3·0	13·2
	O	7	17	24	3	12·5		
11	H	36	53	89	4	4·5	4·1	9·7
	O	9	33	43	6	14·0		
12	H	27	77	104	5	5·0	4·6	8·2
	O	14	25	39	2	5·0		
13	H	40	64	104	3	3·0	4·1	9·7
	O	19	51	70	0	—		
14	H	1	81	82	21	26·0	5·0	?
	O	1	46	47	5	11·0		

*H = history protocol, O = observation protocol.

†With the same average length of utterance (from McCarthy, 1930).

The former is likely to be the more valuable index of the course of the illness in the individual case.

In six children (cases 7, 8, 10, 12, 13 and 14) repetitive speech in certain situations involved other people, and was characterized by insistence that the other person should respond in a predictable way to something the child had said. If the desired response was not forthcoming the child would continue his efforts to elicit it or else he would show signs of frustration. This *verbal to-and-fro* is one example of obsessional behaviour which we have described elsewhere. The child appears to focus not on the content of the conversation but on the verbal interchange itself.

Example of verbal to-and-fro

"He'll repeat bits of information from his encyclopedia . . . and sometimes he will involve others, e.g. he'll say 'El Greco (pronounced El Greeso) is a . . .' wanting mother to say 'a painter'. If she does not, and says instead 'now, you know what El Greco is, you tell me', he'll sometimes try to insist that she tell him and he'll keep repeating 'El Greco is . . .' for some time. Finally he'll tell mother. It's a sort of game (mother thinks) and he'll smile when he tells her."

Another aspect of language we were able to examine was the *proportion of questions asked*. McCarthy found that in normal children the proportion of questions asked in a standard interview did not vary regularly with age. It was around 10 per cent between 18–54 months, and was particularly low (3·5 per cent) at 30 months. The proportion of questions asked by our children was very low (Table 2) except in cases 10, 11 and 14, but not quite as low as in Cunningham and Dixon's case. Histories and observations did not agree well on this point. However, in response to specific questions about this topic, the mothers of all except the clinically most normal child described their children as lacking in curiosity. They asked few questions and none about biological facts.

All children showed *diminished responsiveness* to attempts by others to engage them in conversation: they often failed to answer when spoken to. Absence of expected responses was not recorded systematically and no quantitative data is available. Our impression is, however, that it was more marked in the clinically more severely ill children.

Nine of the fourteen children (cases 6–14) had acquired *reading skills* without particular efforts having been made to teach them to read. Five children (cases 8, 9, 10, 12 and 13) began to read before they were five years old, two (cases 9 and 13) at a time at which they hardly spoke at all. The common story was that the child watched televison commercials avidly and with great regularity, and then proceeded to identify the labels of advertised products in the supermarkets. Once the mothers discovered this interest in the printed word, they began to encourage the children to read magazines and books. All five early readers developed obsessional reading patterns, four in connection with books, newspapers and advertisements, and one was preoccupied with numbers.

Several children were reported to speak better in situations of stress. Example: case 5, whose average length of utterance in the history was only 2·5 words, was on one occasion reported to have spoken eleven consecutive words. This was when the mother's help was holding him and cleaning out his nose. He responded with: "Go away, don't bother me, I didn't trouble you, go away". Linguistically this was the most superior utterance he had ever made.

DISCUSSION

We were surprised to find that data collected by a method not specifically designed to sample the language of schizophrenic children proved to be so fruitful. Mothers' accounts of their children's current language development agreed very well with direct observations. This may in part have been due to the repetitiveness which characterized speech as well as non-verbal behaviour in these children. If anything, mothers tended to exaggerate this quality, reporting relatively fewer different words than were recorded in the observations. Mothers under-reported non-verbal utterances. This is in line with a previous finding (Wolff and Chess, 1965) that repetitive, stereotyped motor behaviour was also poorly reported.

A feature of childhood schizophrenia not often stressed is that it varies greatly in severity from case to case. This was particular evident in our series in the area of language development: four children were almost mute, one producing only vowel sounds, four had much useful speech and six were intermediate in language behaviour. Comparing clinical status from the most severely ill to the clinically most normal child, there was a corresponding improvement in the verbal productions affecting both their quantity and quality. The amount of language recorded, the number of different words and the average length of utterance all correlated highly with a previous clinical assessment of severity of illness. However, in making this assessment speech was taken into account to an unknown extent and we have no independent correlations between language characteristics and other aspects of behaviour.

All children were retarded in their language development when compared with normal children. Severely ill children were very grossly retarded and the two linguistically most advanced attained to only about 75 per cent of the level expected for their age, using average length of utterance as the criterion. Like Cunningham and Dixon (1961) we found that in certain respects (i.e. the amount of repetitive speech and the proportion of questions asked), schizophrenic children were even more retarded than was suggested by quantitative aspects of their speech such as the total number of words recorded or the average length of utterance.

The most striking feature of the children's language was repetition. This took the form of non-verbal utterances, repetitive non-communicative speech and communicative repetition. The ratio of original, non-repetitive speech, to repetitive speech was more highly correlated with clinical status than the ratio of communicative to non-communicative speech. This suggests that repetition rather than failure to communicate may be the more basic abnormality.

Many of the language patterns had the same characteristics as the non-verbal behaviour patterns we have described previously. Non-verbal utterances and repetitive non-communicative speech appeared to have no aim beyond the activity itself and resembled the pre-intentional behaviour patterns which occur in the early infancy of normal children. At the same time the actual behaviour repeated in this apparently aimless way could be quite complex and, if this was so, the repetition often took on obsessional qualities. The verbal to-and-fro, in which the focus was on the interchange itself and not on the meaning conveyed, is an example of this. If the other person failed to provide the "correct" answer, the child persisted in his efforts to elicit it or else showed signs of distress. Several children read in an obsessional way, attending not to content but to the act of reading itself. Repetitive behaviour without apparent aim beyond the activity itself can be understood as a persistence into later life of behaviour patterns normal at a very much earlier developmental stage, and out of step with the child's general level of development.

A second kind of repetitive behaviour shown by these children took the form of repeating exact behavioural sequences without adapting them to changing environmental situations. Much of the children's communicative speech, clearly addressed to another person, consisted of the exact repetition of something the child had heard in a previous and sometimes only remotely similar situation. The child's expression of requests, both verbally and non-verbally, often took the form of saying what the other person usually said in the wished-for situation (e.g. "You want some ice-cream, Thomas? Yes, you may.") or of putting the other person or himself into the position which usually exists when the wish is being fulfilled (e.g. moving the mother's hand towards the kitchen tap in order to get a drink). This kind of repetition may partially account for the oddities of some of the original utterances of the children. For example, the boy who used "the mountain" repeatedly as a general standard for comparison had failed to adapt an idea appropriate in a previous context, when heights were being compared, to such new situations as the comparison of other qualities, e.g. cleanliness.

The other features characterizing both verbal and non-verbal behaviour in these children were diminished responsiveness to outside cues and deficient initiative, curiosity and experimentation. In the area of language these manifested as failure to answer when spoken to, and the strikingly low proportion of questions asked. Our method of observation was less successful in identifying absence of normal behaviour than the presence of abnormal patterns. However, our impression is that the amount of repetitive behaviour is inversely related to the child's exploratory activities and to his accessibility to environmental stimuli.

Some of the children's unexpected skills, manifesting in the language areas as reading abilities, can be understood on the basis of a tendency to attend to repetitive cues and engage in repetitive behaviour (regular and selective watching of television commercials and identification of advertised products), while being relatively inaccessible to interference from other environmental cues.

Kanner, as quoted by Eisenberg (1957), suggested that affective withdrawal and obsessive insistence on sameness are the primary symptoms of early infantile autism, and that the defects of language and the motor abnormalities are secondary. He also stressed (1946–47) the symbolic and metaphorical aspects of the language of autistic children. All the clinical features he described were present in our children, but in the light of our other findings we evaluate them differently. The unusual use of metaphor and symbolic language, which we found in our least severely ill children, appear to us to be the outcome of a relatively advanced level of language development distorted by repetitive clinging to former modes of expression and to former phrases and ideas, and the inability to attend adequately to external cues and to modify behaviour accordingly. Our findings suggest that the basic behavioural disturbance, overshadowing the child's general development and activities to a greater or lesser degree, is the persistence of remnants of repetitive behaviour, appropriate to a previous developmental level, or to a previous environmental context to the exclusion of manifestations of initiative and experimentation and of normal responsiveness to changing environmental stimuli.

SUMMARY

1. Fourteen schizophrenic (autistic) children were studied by means of detailed behavioural histories and observations.
2. The language recorded in history and observation protocols was analysed and compared with available data on normal children.
3. All schizophrenic children were grossly retarded in their language development

and all measures of this correlated highly with a previous overall clinical assessment of the severity of illness.

4. The most striking abnormalities in the language of the children studied were stereotyped repetition of utterances appropriate to an earlier developmental level or to a previous environmental context, accompanied by a lack of normal expressions of curiosity and of responsiveness to changing environmental cues.

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DEVELOPMENTAL INCREASE OF AMBIDEXTERITY IN TARGET TESTS

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During an investigation of motor development between the ages of 7 and 14 years with the purpose of constructing a clinically sensitive motor scale, a simple target test, described in detail below, was administered. Closer inspection of the target test data, gathered during two exploratory pilot studies, revealed a consistent, although not significant throughout, increase of ambidexterity with age, whereas no such pattern appeared in other bilateral motor performances of the upper extremities. A replication on a larger sample with equal and satisfactory representation of all age groups (a condition which did not prevail in the two pilot studies) yielded the statistically significant results which are reported in this paper.

Viewing these findings in the light of the relevant literature, it was found that Durost (1934) reported similar results with age groups 9–16, employing a somewhat different technique of throwing at targets. Although our study thus turned out only post factum to be a kind of cross validation of Durost's findings, there seems to be little doubt, in view of the parallel outcome of the two studies, that developmental increase of ambidexterity in target tests is an experimentally verifiable fact, calling for systematic exploration and explanation.

Before we review and discuss in greater detail the methods and results of Durost's study and those of the present investigation, we shall try to explain the possible reasons that so little attention has been paid to this developmental pattern, in spite of the fact that throwing at targets is an easily observable and scorable motor performance, popular as a leisure activity and widely used as test item in motor developmental trends of laterality. (Oseretzki 1929; Jarmolenko 1933; Sloan 1955; Ojemann 1930; Durost 1934; Hildreth 1949; Belmont and Birch 1963.)

Possible reasons may be: 1. Subjects tested for lateral preference† in tasks involving throwing at targets, consistently prefer to use their dominant hand. (Heinlein 1930; Belmont and Birch 1963.) The pattern of increasing ambidexterity will not show up, unless *S*s are explicitly asked to throw also with their non-dominant hand.

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†In studies on laterality a clear distinction between hand preference and hand dominance must be made. Hand Preference is measured by observing the motor performance in a more or less free situation, where no explicit instructions are given as to which hand is to be used. The frequency of the spontaneous use of the preferred hand is registered. Another method is to ask *S*s to report their hand preferences in various tasks in the form of a questionnaire. (See Durost 1934, p. 229.)

2. Also when assessing lateral dominance* by comparing the performances of both hands, the dominant hand will show a steady superiority throughout the ages, overshadowing the narrowing gap between the achievement scores of the right and left hand. (See Sloan 1955, p. 248 and our Tables 2 a and b.) 3. In order to detect a developmental pattern of laterality in throwing at targets, a relatively large number of throwing trials must be given to each hand. Most routine motor tests require only a small number of trials. Only when measuring the relation between the performances of each hand on many trials will it become apparent that the "non-dominant" hand (in most cases the left) seems to "catch up" with the dominant with progressing age, thus creating the impression of increasing ambidexterity.

METHOD

The method of measuring the relationship of changing laterality is simple and has been described by Durost (1934) and Hildreth (1949). The difference in number of hits between the right and left hand is divided by the total sum of hits made by both hands together and multiplied by 100. The general formula, applicable to any motor task involving comparable performances of the two hands or feet reads

$$\frac{R-L}{R+L} \times 100,$$

and yields the so-called "Handedness Score" (Durost 1934) or "Index of Dominance" (Hildreth 1949). With superior performance by the left hand, the score will be negative. In the case of equal performances, indicating "ideal" ambidexterity, it will be zero. Extreme dominance of one hand yields a score of + 100 or − 100 respectively. For a discussion of the statistical rationale of the Handedness Score, see Durost (1934, p. 292).

Durost (1934) administered 4 group motor tests to a large population of about 1100 *S*s aged 9–15 years. The Handedness Score on his Target Test showed a significant increase of ambidexterity with age, in contrast to his two Maze Tracing Tests, which yielded Handedness Scores indicating a significant increase of lateral dominance throughout the same age groups. The fourth test, puncturing small circles with a pin, did not show any definite developmental trend of handedness. Durost's Target Test consisted in throwing a spear at 60 small round targets, the areas of which were subdivided into a bull's eye and two concentric circles. The test is described in detail by Durost (1934, pp. 243, 256).

Our study is based on three samples of normal Israeli children at ages 7–14 (comprising 75, 143 and 217 *S*s of both sexes) drawn at random from grades 1–8 of elementary schools in Jerusalem and Tel-Aviv. In the main study the sample was drawn from three elementary schools from three areas of differing socio-economic levels in Jerusalem, and each age-sub-group was stratified accordingly.

In our Target Test, three round targets with diameters of 45, 35 and 25 cm respectively are used. *S*s stand upright at a distance of 2 m from the target and are instructed to throw a tennis ball 5 times at the largest target, first with the right and then with the left hand, thereafter at the medium, and finally at the small target always using the right hand first. Durost's Subjects threw three times, first with their "writing", and then with their "non-writing" hand, at each of the 60 targets of his test. (Durost 1934, p. 243.)

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*Hand Dominance is the objectively measured superiority of one hand over the other in some physical attribute or in an explicitly defined skilled performance, observed under controlled laboratory or test conditions. The choice of the hand to be used depends on the examiner's instructions.

RESULTS

The total number of hits is summarized for each hand separately, so that a "general achievement score" (sum of hits) and a "Handedness Score" (HDS) can be computed (see above). The good positive correlation of the "general achievement score" with age is a finding consistent with results reported in the literature (Oseretzki 1929; Sloan 1955) and need not concern us here.

As shown in Tables 1 a, b, c, d the Handedness Score decreases with age, thus indicating an increase of ambidexterity.* In the two Pilot studies, with relatively small numbers of *S*s and irregular representations of age groups, the relationship between HDS and age is not significant, except for boys in Pilot study 1. In the main study, relationships reach a satisfactory level of significance for both sexes. It will be noted that the developmental increase in ambidexterity is more pronounced in boys. Another tendency is the generally lower achievement of girls in hitting the target. (See Tables 2 a and b.) This sex difference, although consistent and in accordance with Sloan's findings (Sloan 1955), is not significant throughout all the age groups. As this inferior achievement of girls appears in the performances of both hands, it does not account for the girls' slower and smaller decrease of HDS with age.

As the maximum score is 15 hits per hand, the increase of ambidexterity might be suspected to be a possible artifact created by a "ceiling effect", i.e. the dominant hand, being limited by a maximum score of 15, might permit the non-dominant hand to "catch up". The gap between the performances of both hands would thus be narrowed by the mere improvement of skill with age in the non-dominant hand.

In such a case, those *S*s in the older age groups, who show the highest, i.e. nearest-to-the ceiling, achievement scores of their dominant hand, would have the lowest HDS. To test this hypothesis Spearman rank correlation coefficients, corrected for ties (Siegel 1956, p. 206), were computed between achievement scores for dominant hand and HDS, for each of the age groups 11, 12, 13 and 14 separately. A possible ceiling effect would thus be detected by consistently significant or near significant negative correlation coefficients. It can be seen from Table 3 that this is not the case.

Girls show consistently very low insignificant negative correlations, although their HDS drop sharply and significantly ($P < 0{\cdot}001$) between the two pairs of age groups 11 and 12, and 13 and 14. Boys show insignificant correlations, in alternating

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*The distributions of HDS are positively skewed, which is in accordance with Durost's findings. Therefore results were re-evaluated by non-parametric statistics in Table 1, c and d.

Negative signs of HDS, indicating a superior performance of the left hand by left-handed *S*s, were disregarded and HDS were treated as if they were positive throughout. The average percentage of negative HDS per age group was about 10 per cent. Their number was thus too small for separate analysis. On the other hand, excluding them from the sample did not result in any change of the general pattern of developmental decrease of the HDS.

Table 1a. Means and standard deviations of handedness scores, eta coefficients and analysis of variance between HDS and age

	Boys								
		$N = 33$ Pilot 1			$N = 70$ Pilot 2			$N = 104$ Main study	
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Age									
7	4	35·7	18·65				12	26·5	15·07
8	5	31·7	23·60	10	25·7	28·07	10	36·4	15·31
9	5	21·1	14·70				16	32·4	16·89
10	6	25·5	13·84	10	15·5	13·80	12	28·0	13·14
11	4	23·9	8·24	13	22·0	14·83	17	15·0	10·32
12				17	11·5	11·36	12	12·0	10·49
13				9	7·6	7·67	14	14·0	10·71
14	5	10·1	8·03	11	13·0	12·60	11	15·0	17·33
15	4	8·3	2·29		..				
		$\eta = 0{\cdot}70$ $F = 4{\cdot}11$ $df = 26$ and 6 $P < 0{\cdot}01$			$\eta = 0{\cdot}36$ $F = 1{\cdot}88$ $df = 64$ and 5 *N.S.*			$\eta = 0{\cdot}54$ $F = 5{\cdot}52$ $df = 96$ and 7 $P < 0{\cdot}01$	

Table 1b. Means and standard deviations of handedness scores, eta coefficients and analysis of variance between HDS and age

	Girls								
	$N = 42$ Pilot 1			$N = 73$ Pilot 2			$N = 113$ Main study		
Age	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
7	4	26·7	23·21				12	32·0	18·98
8	5	37·3	18·15	9	37·6	30·40	13	27·0	16·25
9	4	22·5	13·76				12	24·0	20·30
10	7	20·0	15·16	15	28·7	25·45	12	23·0	10·00
11	5	11·2	9·06	22	20·9	13·63	19	22·0	23·45
12				15	16·9	11·64	14	20·0	13·07
13	8	20·6	20·13	12	20·3	15·17	12	12·0	6·94
14	5	13·3	12·84				13	11·0	7·65
15	4	13·7	9·67				6	14·0	12·85
	$\eta = 0{\cdot}42$ $F = 1{\cdot}07$ $df = 34$ and 7 *N.S.*			$\eta = 0{\cdot}32$ $F = 1{\cdot}97$ $df = 68$ and 4 *N.S.*			$\eta = 0{\cdot}37$ $F = 2{\cdot}08$ $df = 104$ and 8 $P < 0{\cdot}05$		

Table 1c. Distribution of HDS in age groups dichotomized at median HDS of each sample

Boys

Pilot 1	Age		7–10	11–15	*N*
	Median = 18	Above	13	4	
		Below	7	9	
			20	13	33

$X^2 = 2{\cdot}77$ $P < 0{\cdot}1$
1 *df*

Pilot 2	Age		7–9	10–11	12–14	*N*
	Median = 11	Above	12	16	7	
		Below	8	14	13	
			20	30	20	70

$X^2 = 3{\cdot}94$ $P < 0{\cdot}2$
2 *df*

Main study	Age		7–8	9–10	11–12	13–14	*N*
	Median = 18	Above	17	20	8	6	
		Below	5	8	21	19	
			22	28	29	25	104

$X^2 = 22{\cdot}40$ $P < 0{\cdot}001$
3 *df*

TABLE 1D. DISTRIBUTION OF HDS IN AGE GROUPS DICHOTOMIZED AT MEDIAN HDS OF EACH SAMPLE

Girls

Pilot 1	Age		7–10	11–15	*N*
	Median = 13	Above	11	11	
		Below	9	11	
			20	22	42

X^2 *N.S.*

Pilot 2	Age		7–10	11	12–13	*N*
	Median = 20·5	Above	13	11	12	
		Below	11	11	15	
			24	22	27	73

X^2 *N.S.*

Main study	Age		7–8	9–10	11–12	13–15	*N*
	Median = 16	Above	19	14	18	6	
		Below	6	10	15	25	
			25	24	33	31	113

$X^2 = 18{\cdot}25$ $P < 0{\cdot}001$
3 *df*

TABLE 2A. MEANS AND STANDARD DEVIATIONS OF ACHIEVEMENT SCORES ON TARGET TEST. MAXIMUM SCORE OF EACH HAND: 15 HITS

Boys

Age	Pilot 1					Pilot 2					Main study				
		Right		Left			Right		Left			Right		Left	
	N	*M*	*SD*	*M*	*SD*	*N*	*M*	*SD*	*M*	*SD*	*N*	*M*	*SD*	*M*	*SD*
7	4	11·3	1·48	5·5	2·18						12	9·3	2·42	5·8	2·28
8	5	7·8	1·72	4·4	2·73	10	7·5	2·42	4·2	2·56	10	8·8	3·09	6·7	3·63
9	5	10·4	3·38	6·8	2·48						16	10·8	2·93	6·4	2·66
10	6	10·8	1·37	6·7	1·96	10	9·9	2·95	7·3	3·08	12	11·3	1·42	6·4	1·83
11	4	11·8	0·83	7·3	1·09	13	11·7	1·40	7·6	1·96	17	12·1	1·89	9·3	1·73
12						17	13·1	1·12	10·6	2·29	12	12·9	2·58	11·3	1·87
13						9	12·6	1·61	10·9	2·23	14	13·2	1·93	10·9	2·28
14	5	14·0	0·63	11·6	2·15	11	12·8	1·68	10·1	2·68	11	13·5	1·21	11·6	3·43
15	4	13·0	2·00	11·0	1·58										

TABLE 2B. MEANS AND STANDARD DEVIATIONS OF ACHIEVEMENT SCORES OF TARGET TEST. MAXIMUM SCORE OF EACH HAND: 15 HITS

						Girls									
	Pilot 1					Pilot 2					Main study				
		Right		Left			Right		Left			Right		Left	
Age	*N*	*M*	*SD*	*M*	*SD*	*N*	*M*	*SD*	*M*	*SD*	*N*	*M*	*SD*	*M*	*SD*
7	4	6·5	1·66	4·3	2·17						12	5·9	2·62	4·3	2·8
	5	7·8	2·48	3·4	0·80	9	8·4	2·77	4·2	3·21	13	8·2	2·30	5·4	2·74
9	4	9·8	1·30	6·3	1·48						12	8·4	2·97	6·8	3·83
10	7	8·3	2·03	5·9	2·58	15	8·7	2·03	5·4	2·91	12	9·8	2·07	7·1	2·11
11	5	11·3	1·02	9·0	1·67	22	10·8	2·62	7·2	2·39	19	10·7	2·34	7·8	3·30
12						15	11·0	1·69	8·0	2·34	14	11·1	2·69	8·9	2·35
13	8	12·9	0·70	9·8	3·12	12	10·2	1·66	6·7	1·92	12	12·3	1·56	10·6	2·41
14	5	14·0	0·63	11·0	2·76						13	11·9	2·03	9·9	2·26
15	4	12·3	1·64	9·3	1·09						6	12·3	2·51	9·6	3·10

TABLE 3. SPEARMAN RANK CORRELATIONS BETWEEN ACHIEVEMENT SCORES OF DOMINANT HAND AND HDS IN THE FOUR OLDEST AGE GROUPS OF MAIN STUDY

N	Age group	Boys Mean HDS	Rho	*P*
17	11	15·0	0·394	approaches 0·05
12	12	12·0	0·030	*N.S.*
14	13	14·0	0·141	*N.S.*
11	14	15·0	– 0·335	*N.S.*

Girls

N	Age group	Mean HDS	Rho	*P*
19	11	22·0	– 0·148	*N.S.*
14	12	20·0	– 0·187	*N.S.*
12	13	12·0	– 0·173	*N.S.*
13	14	11·0	– 0·06	*N.S.*

directions, whilst their HDS are rather consistently low. In fact, the only nearly significant correlation appears in age group 11, but is positive, i.e. in a direction opposite to that expected as an outcome of the "ceiling effect". The lowest correlation shows up in age group 12, which achieves the lowest HDS and thus should be most affected by the ceiling. The only group, possibly under the influence of a ceiling effect, is age group 14 with an insignificant but relatively higher negative correlation of —0·335. However, the significant difference in HDS between the younger and older age groups in the whole sample of boys prevails, even when this age group is eliminated from the sample ($P < 0{\cdot}001$). It should also be noted that the sharpest and most decisive decrease of HDS occurs at ages whose achievement scores are still well below the ceiling. (See Tables 1 a and b and 2 a and b.)

These findings indicate that there is no apparent relationship between HDS and achievement of the dominant hand, when age is held constant. It must therefore be concluded that no ceiling effect is operating and that the decrease of HDS by age should chiefly be attributed to a genuine effect of development.

Contrasting with the developmental pattern of the target-test-HDS, no developmental increase of ambidexterity as measured by the same method was found in three other tests of our battery, measuring coordinated movements of the two hands, i.e. tapping, putting dots into squares and punching small holes with a pin through a sieve. This would be in line with Durost's (1934) findings.

DISCUSSION

The cause of the divergent developmental pattern of handedness in tasks demanding aiming at a target seems far from clear in the literature. If all or most motor tests involving coordinated movements of arm, hand and fingers showed an increment of ambidexterity with progressing age, either the influence of direct practice of the non-dominant hand, as suggested by Hildreth (1949), or a factor of transfer of training from the dominant to the non-dominant function, as demonstrated by Munn (1932) would be the most parsimonious explanation. However, the fact that tests like punching, tracing and tapping do not show increasing ambidexterity could hardly be explained by the assumption that children train their non-dominant hand less in such simple motor tasks than in games involving aiming. In our project, three age groups of boys, 7, 10 and 13 years, drawn from the same population who had been given the target test, were later tested on a simple "preference" task, i.e. they were asked to throw the ball at the same targets, but this time without any instructions as to which hand to use. 93 per cent at age 7 ($N = 36$), 93 per cent at age 10 ($N = 36$) and 100 per cent at age 13 ($N = 21$) used their right hand consistently and exclusively. The remaining 7 per cent in the two lower age groups consistently threw with their left hand. Any training by direct practice of the non-dominant hand should at least partially show up in slightly increased mixed hand preference in the older age groups. Such an influence of training and socialization has been demonstrated by Hildreth (1949) in younger age groups. Actually Heinlein (1930) and Belmont and Birch (1963) testing hand preference, report increasing laterality, i.e. decreasing ambidexterity of preference in target tasks, which again weakens the assumption that direct training of the non-dominant hand in aiming is responsible for its relatively much better performance in elder age groups.

Durost (1934) explains that the target test involves the use of larger muscles of the forearm and shoulder, and that apparently as one grows older there is less differentiation between the arms so far as the coordination of the larger muscles is concerned, whereas the maze tracing tests demand a high degree of coordination of finer muscles and therefore the trend towards greater specialization, i.e. lateralization, becomes definite (*op. cit.*, p. 313 ff.). In his target test Durost artificially locked the wrist by a special device (see *op. cit.*, p. 243) "so that the movement made in striking the target was a movement of the forearm rather than the hand and that the larger muscles were called into play". No such restriction of hand and finger muscles in ball throwing was imposed in our study and still the same effect of increased ambidexterity showed up. It seems that Durost's hypothesis demands vertification by more elaborate techniques of measuring gross and fine muscle involvement in target tests.

We propose the following alternative hypothesis: throwing at a target, in contrast to tapping, maze tracing, punching, etc., involves estimation of trajectories, as well as of size constancies, in a frame of reference of three-dimensional space. This would mean that a cognitive factor of spatial orientation or estimation of size is likely to be involved. Such a factor would be of benefit to the non-dominant hand, independently of any transfer of motor training, as in Munn's (1932) study. The rather intensive development of schemata of spatial reference and their influence on perceptual processes at ages 9–12 have been explored and recently summarized by Piaget (1961). It seems therefore not too far-fetched to assume a similar influence of cognitive sets in the area of motor functions. In this context attention should be drawn to the fact that the steep decline of HDS, accompanying an accelerated "catching up" of the left hand's performance, occurs between ages 9 and 12 (Tables 2 a and b) which corresponds to the period during which Piaget assumes that perception is structured under the influence of three-dimensional spatial schemata.

Such a hypothesis could be tested by controlled experiments. Besides the importance of the theoretical issue, target tests might turn out to be useful instruments in developmental and clinical diagnosis. They have the certain advantage of being simple and quick to administer. Furthermore, if the hypothesis were supported, they might reveal important relationships between cognitive and motor development.

SUMMARY

Subjects aged 7–15 who were given a simple target test, showed a significant increase of ambidexterity with age in terms of a "Handedness Score". This developmental pattern did not appear in other motor tests involving the hand. Parallel findings were published by Durost in 1934. The hypothesis that cognitive sets based on schemata of spatial reference influence motor performance in target tests is discussed.

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DISTRACTIBILITY AND SOME SCHOLASTIC SKILLS*

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INTRODUCTION

Previous research carried out by the author (1963) was concerned with the effect of extraneous stimuli (distraction) on task performance in subnormal subjects. This, and other research (Pollock and Bartlett, 1932) on normal subjects, indicated that they adapt fairly quickly to continuous stimulation. However, in the normal learning environment, extraneous stimuli are generally varied and intermittent. The situation is further complicated by the continual change of the pattern of stimulation in the learning process itself. In the course of experiments into the effects of extraneous stimulation, a number of subjects who were shown to be extremely distractible also had specific limitations in the field of learning, and it seemed possible that there was some association between these two aspects of behaviour.

The present paper illustrates an attempt to minimize extraneous stimuli in order to facilitate learning in such a subject. In devising a method of education the research worker is faced with a number of experimental problems, because he may wish to use many educational tools. Any improvement in learning may be due to the particular variable in which he is interested, such as distraction, or to other variables which are not fully controlled. Such lack of control is perhaps almost inevitable when the educational tool requires to be adapted to the needs of a specific subject. However, the value of an experimental approach to the individual case has been clearly demonstrated by Bartlet and Shapiro (1956).

SUBJECT AND PROBLEM

The patient, aged 17 years, had been in a hospital for subnormals for three years. He had attended primary school until the age of 8, when he was ascertained as feeble-minded. He went to an Occupation Centre from 9–14 years, after which he was admitted to the hospital for subnormals as a result of an appearance before a juvenile court for damage to windows and a cigarette machine. During his stay at hospital he was placed at a day school for the educationally subnormal. Although a number of patients from the hospital have made successful returns to school, in this case the patient had to be excluded after two terms due to disturbed behaviour. During this time he made little progress in educational skills and his concentration was said to be extremely poor. He was unable to read, and obtained a zero score on Schonell Graded Word Reading Test (1960), although he had been given individual coaching by the hospital psychologist and received some remedial tuition at school.

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*The article is based on material which is to be presented in Ph.D. thesis, University of London.

In the former the Daniels and Diack (1960) method was used. The patient had little attainment in social arithmetic (money, measuring, weighing).

A summary of cognitive testing is given below.

	Verbal IQ	Performance IQ	Full Scale IQ
1962 WAIS	76	69	71

The patient lived at home from 0–14 years. The home would probably not be classified as 'adverse' on Clarkes' criteria (1954), though it is of note that he attended school irregularly, and is said to have lacked adequate supervision at home. His father was a semi-skilled manual worker. It is possible that the patient was brain damaged, since there is a history of meningitis during his second year.

During the present study the patient worked in the hospital's industrial training unit. His behaviour rating, recorded each day by the unit supervisor, showed him to be a less good worker than other patients, particularly in terms of concentration.

He took part in two experiments (Brown, 1964, 1965) on the effects of extraneous stimulation and was found to be extremely distractible in auditory, but not in visual, tasks. He was perhaps unusual in this, for he has a relatively high Verbal IQ which tends to be associated with low auditory distractibility (paper to be published).

In view of his cognitive performance, specific educational handicaps, and gross auditory distractibility, it was decided to construct a method of education involving minimal extraneous stimulation. Firstly, it was decided to train him in simple measuring technique. This was chosen because it was thought that the training involved would not be great and thus could act as a pilot study. In addition, progress in the learning of measurement can itself be easily measured and assessed reasonably objectively. Secondly, provided this first aspect of education was successful, an attempt would be made to teach the subject to read. Reading was selected because:

1. The patient had been given a considerable amount of remedial coaching in which little progress had been made. This would act as some form of control on the method to be employed, especially as the experimenter had attempted part of the previous coaching.
2. The task would contain a large auditory element, a sphere in which the patient showed marked distractibility.
3. Reading progress could be easily measured.

Training in measurement

Method. A series of rulers was prepared ranging from a simple construction showing inch markings only, to a normal foot rule. Thus, confusing and distracting elements such as tenths and different scales of measurement (millimetres and centimetres) were omitted from the first rulers. The training taught the patient to measure to the nearest quarter inch. A number of lengths of wood were presented to him for measurement. The difficulty level was gradually increased until he was able to tackle items such as the width and height of a table. Training was presented by means of a special series of tape recordings, made to be used in conjunction with the rulers and wood lengths. These gave the subject precise instructions that were as free from redundant information as possible (see Appendix 1). Training took place in a small room with the subject seated at a desk facing a blank wall. The experimenter was the only person present, but he remained behind the subject and was seated for most of the time at another desk. Training was carried out in a total of four sessions (one per day), and included repetition of some of the material.

Results. The patient was assessed on measuring proficiency on the day before and after training. He was required to answer a number of practical questions relating to measurement and was provided with a foot rule. Answers were given a score of 1 if correct and a score of ½ if the error was no greater than ½ inch. The results presented in Table 1 show that there was considerable improvement over the training period, and a further test given after a period of five months indicates that learning was retained.

TABLE 1. ASSESSMENT OF MEASURING ABILITY BEFORE AND AFTER TRAINING

Objects presented for measurement	Subject's responses		
	Before training	After training	5 months later
Envelope			
Length (1 ft 2 in)	12 & 2 in = 12 in & ¾	1 ft 2½ in	1 ft 1¾ in
Width (9 in)	9 in	9 in	9 in
Book			
Length (6 in)	9 in	5¾ in	6 in
Width (4 in)	4 in	4 in	4 in
Box			
Length (2½ in)	2½ in	2½ in	2¼ in
Cabinet			
Height (2 ft 4 in)	24½ in	2 ft 3½ in	(2 ft 9¼ in (corrected to 2 ft 3½ in)
Wood			
9¼ in	9 in	9¼ in	9¼ in
9¾ in	9½ in	9¾ in	9¾ in
HOW MANY			
Inches in a foot?	24	12	12
HOW MANY			
Feet in a yard?	Don't know	3	2
(*E* pointing to the ruler)			
Show me 1 in			
½ in	Correct responses on all 3 occasions		
¼ in			
What is ½ a foot?	½ in	6 in	6 in
How long is this ruler?	12 in (or) Don't know	12 in (or) 1 ft	12 in (or) 1 ft
No. correct	6	12	11
½ score (to nearest ½ in)	2	3	2
TOTAL	7	13½	12

Teaching reading

Method. In view of the apparent success of the measurement training, it was decided to construct a comparable method for reading. Again the main concern in construction was the removal of extraneous stimulation outside and within the task. A number of features in the test construction tended to minimize the stimulation at any one moment, which can best be appreciated by describing the method.

Thirty-six cards were prepared, each showing letters which were then built into words. The first card is given as an example (Appendix 2). Very little material was presented at first and the letters chosen were distinct from each other in terms of shape, so that learning of letter-sound associations would not be hampered by stimulus or response confusion. The first ten cards dealt with single letters while the later cards were essentially concerned with digraphs.

A phonic approach was used. Tape recordings of the letter sounds were made, interspersed with instructions to the subject (Appendix 2). The subject was presented with the cards one at a time together with the appropriate recording and was required to follow, and sound the letters on request. As the subject worked through the material the letter sounds followed his attempt to give them. Thus errors could be dealt with instantaneously and without confusion, and correct responses immediately rewarded and reinforced; conditions which are thought to be favourable to efficient and fast learning.

The speed of the tape recording was set, as far as possible, to the patient's response rate, and over the series of cards the speed of presentation increased. However, it was found that the subject could adapt to different presentation speeds quite easily.

The number of cards presented each session varied, but was generally no greater than three. Sometimes cards were repeated, since it was decided that the subject should have a proficient knowledge of material before proceeding further. It can be seen from this that each session rarely exceeded 15–20 minutes, and was often less. Only one session was given each day.

Results. In order to assess progress the Schonell Graded Word Reading Test (1960) was given periodically. The subject increased his reading age by 2·9 years in 27 weeks (Fig. 1), that is, from zero measurable attainment to a reading age of 7·9 years. This included a five-week period lost through holidays.

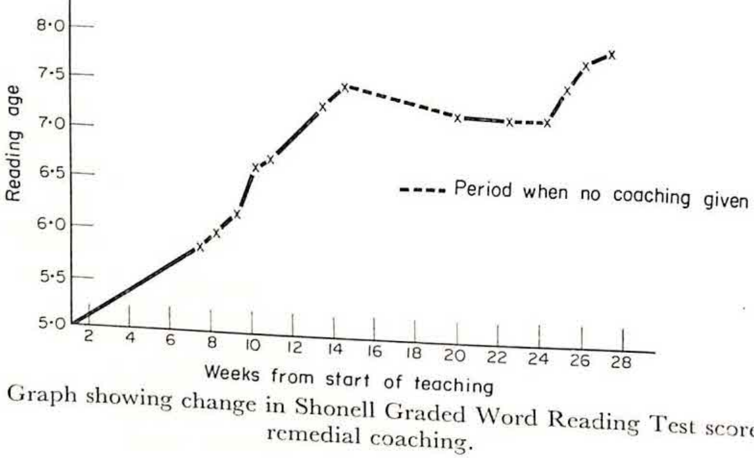

FIG. 1. Graph showing change in Shonell Graded Word Reading Test scores during remedial coaching.

It is acknowledged that frequent presentation of the reading test might result in some practice effect. However, immediate retest on subnormals generally shows little change in scores, and it is thought therefore that such an effect did not greatly influence the results in this case. The degree of improvement is supported by the fact that the subject was beginning to read simple newspaper articles. The Mechanical Test, however, gives a rather biased measure of progress, in that the subject's speed of reading was poor, so that although he could read much of the Schonell "My Dog" Prose Reading Test (1960) his speed fell below the norms.

DISCUSSION

The results indicate that the method was successful within certain limits. Unfortunately, the study had to be stopped, because the subject discharged himself from hospital.

A number of features are worthy of comment. Firstly, the absence of distracting stimuli appeared beneficial. In previous remedial education, and also in training, the subject's extreme distractibility had been observed, and this was confirmed by the auditory distraction experiments. In the reading sessions prior to the experiment, the subject had great difficulty in keeping his place in the text, often interrupting, and asking about pictures in the book, work, features of the room, problems on the ward, and referring to noises outside. Even during training, noises outside, such as hammering, occasional vehicles or aircraft, obviously disrupted his performance. In fact a few sessions had to be abandoned because of complete breakdown in performance due to outside interference. However, the training sessions on the whole had little extraneous stimuli associated with them, and the method itself demanded the subject's attention in that he knew that failure in concentration would result in a complete breakdown in performance. Also, he was unable to talk with the experimenter.

Secondly, the subject appeared highly motivated, and until his discharge, came regularly for the sessions, which he had not done for previous remedial coaching. There are a number of possible explanations for this. He had been taught to use a tape recorder, which appeared to provide considerable interest for him. He was also successful in reading, in contrast to his previous experience. In fact he frequently commented upon this, and asked to take home books to read to his parents. He started to read passages from books on the ward without encouragement, and frequently asked when he would be able to read more fluently. He was regularly shown the graph of his performance, and, by extrapolation, shown where his level might be in one or two months' time, which in itself probably provided motivation, and is similar to one of the methods of training suggested by such workers as Clarke (1958) and Gunzburg (1958).

Although the subject's progress may be accounted for in terms of the distraction-free learning situation along with heightened motivation, there is a third possibility, namely that he had matured since previous education, and that this alone accounted for the ability to benefit from training. It is difficult to prove or refute this hypothesis. However, the subject had shown no similar progress in work training or other aspects of education for which he attended classes.

SUMMARY

In the present study an attempt has been made to overcome learning problems in a single case who showed marked distractibility. Educational material was programmed and presented in such a manner as to reduce extrinsic and instrinsic sources of distraction. The results indicate that considerable improvement was made, though it is possible that this was due to a number of factors. However, it is suggested that this approach to learning problems, that is, a comprehensive preliminary investigation of the subject followed by the programming of educational material to suit the subject's needs, may be a useful technique in the field of subnormality.

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APPENDIX 1

Example of tape material for training in measurement

We are going to learn how to measure.

I want you to listen very carefully to what I say and do exactly what I say as quickly as you can.

You will have to listen very carefully because I shan't say anything twice.

Now I want you to look at the ruler in front of you.

It has marks on it. The space between two marks is an inch. Each mark has a number by it, 0, 1, 2, 3 and so on up to 12.

How long is your ruler?—It is 12 inches. There are 12 inches in 1 foot. Your ruler is one foot long.

See the piece of wood marked *A*. Measure how long it is.—It is 12 inches long or we can say it is one foot long.

How long is the piece of wood marked *B*?

It is 6 inches long. Look, 6 inches is half the ruler—we could call it half a foot.

Now measure piece *C*.—It is 4 inches long. And now try piece *D*.—It is 9 inches long.

Now take the other ruler on the table. It is the same as the first one except that it has some extra marks. They are ½ inch marks. Take the piece of wood marked 1 and measure it.—It is 6 inches long and a bit more. It goes up to the ½ inch mark. We say the wood is 6½ inches long.

Take the piece of wood marked 2. Measure it.—It is 9½ inches long.

Take the piece of wood marked 3. Measure it.—It is 7½ inches long.

Now try pieces of wood 4, 5, 6, 7, 8. Do each in turn and write down your answer on a piece of paper and give them to me.

APPENDIX 2

Sample of visual material presented to the subject

Card 1. (Actual letter size was about ¼ inch, though after card 10 the size was gradually reduced.)

(1)
(a)
a
e

a e
b t
a e b t
b a t b e t
t a b a t

Tape material presented with Card 1.*

Look at page 1.
The first letter is the letter a.
a sounds /a/.
You say it —— /a/.
Look at the next letter. Letter e.
It sounds /e/.
You say it —— /e/.
Now look at the line below. The first letter sounds /a/.
You say it —— /a/.
And the next letter sounds /e/.
You say it —— /e/.
The next line. The letter b.
The letter b sounds /b/.
You say it —— /b/.
The next letter is the letter t.
It sounds /t/.
You say it —— /t/.
And the next line. You say them:—
/a/ – /e/ – /b/ – /t/.
The next line, we have some words. You sound the letters and see if you can get the words.
/b – a – t/ /b · a · t/ /bat/
Next one:—
/b – e – t/ /b · e · t/ /bet/

---

*Enclosed letters, e.g. /a/, /b – a – t/ indicate phonic sounds given. Unenclosed single letters indicate letter names given. (—— indicates pause.)

And the next line. The same thing.

/t – a – b/ /t · a · b/ /tab/

And the next one:—

/a – t/ /at/.

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BOOK REVIEWS

A Short History of British Psychology 1840-1940. L. S. HEARNSHAW. Methuen, London, 1964, pp. 342. 35s.

IT IS astonishing, as Professor Hearnshaw observes, that "although several good general histories of psychology are available, no history of British psychology has as yet been written". During the last hundred years psychology has developed at an ever-increasing pace from a branch of philosophy into an independent science; "and in this dramatic rise British work has been of exceptional importance; yet it has been shamefully neglected, not only by the public, but by British psychologists themselves". Not so long ago the French psychologist, Ribot, in a study of *La psychologie anglaise contemporaine* went so far as to maintain that "England" (in which presumably he included Scotland) "is the country that has done most for psychology". Today, says Professor Hearnshaw, British psychologists look for their inspiration chiefly to American textbooks and American research-workers, and are thus frequently re-learning from their transatlantic colleagues what British psychologists had already discovered half a century ago. Evidently therefore there was an urgent need for a detailed survey of British work; and Professor Hearnshaw's book admirably fills the very obvious gap.

He begins his "short history" with Alexander Bain, "the author of the first textbook of psychology written in the modern manner", and in his opening section briefly sketches in "the background to Bain". This. as he clearly shows. closely resembles that of the present-day behaviourist; nevertheless there was at least one strong dissentient voice. The poet Coleridge, "a figure of profound interest to British psychologists", had already "turned from the associationism of Hartley" to stress the "unity and activity of the mind and the role of feeling". He was, we are reminded, especially interested in what it is now the fashion to call 'creativity'; and it is to that "subtle-souled psychologist" (as Shelley called him) that we owe the useful term "psychosomatic" and much that it implies.

From Coleridge and Bain we proceed, via mesmerism and phrenology, to the work of W. B. Carpenter, Registrar of the University of London, and of his more famous pupil, Henry Maudsley, Professor of Medical Jurisprudence at University College. Carpenter's doctrines of the 'reflex action of the brain', 'mental levels', and 'unconscious cerebration'—as set forth in his *Mental Physiology*, and adopted by Maudsley in his *Physiology and Pathology of the Mind*—have a curiously modern ring. Full justice is also done to another "forgotten pioneer", G. H. Lewes, "unofficial husband" of George Eliot. Lewes' knowledge of German philosophy and physiology gave him, we are told, a marked advantage over his contemporaries; and it was he who first clearly formulated the three-fold scheme of 'stimulus', 'organization', and 'response', which in his view lay at the basis of all nervous functioning at every mental level, and reappears in the writings of the later neurologists. Verbal thinking he regarded as essentially motor thinking; and he recognized, fully a quarter of a century before the Würzburg school, the way in which "thinking goes forward with reliance on logical operations, and only on occasional translation of symbols into images".

A long and illuminating chapter on "the Rise of the Evolutionary Theory" and the introduction of a biological approach to psychological problems leads naturally on to "Galton and the Beginning of Psychometrics". In Professor Hearnshaw's opinion, "Galton's work", which included the earliest experiments in mental testing and numerous researches on school children, has proved to be "one of the foundation-stones of modern psychology".

With Lloyd Morgan and his famous 'canon' we reach the beginning of experimental studies of associative learning in animals. It was he who introduced the suggestive terminology that is still in use—"trial and error", "reinforcement", "inhibition"—"all this", as Professor Hearnshaw emphasizes, "before Thorndike and his work". In Hobhouse's later experiments on elephants and chimpanzees, we find clear anticipations of "learning by insight" and of the influence of what we now know as *Gestalt*, as well as the maxim that "a radical behaviourism is the one and only method of psychology".

And so we come to the more familiar names and more familiar contributions, which make up the second and larger half of the book. Those who wish to understand the problems, the concepts, and the scientific techniques of present-day psychology in this country should not fail to study these informative chapters. The volume ends with a comprehensive review of recent work in the principal fields of 'Applied Psychology'—including three long sections on 'Educational Psychology', 'Child Study and Child Guidance', and 'Mental Health'. A 'select bibliography', arranged according to chapters and fully annotated, rounds off the whole.

The amount of reading that has gone to the making of this book is amazing. The whole story is told in a lucid and lively style; and new and unexpected light is constantly thrown even on topics that are familiar or well worn. The treatment is eclectic, and the comments and criticisms admirably impartial. This is a book which should be in the hands of every student of psychology and can be read with profit and enjoyment by all who are engaged in teaching it.

CYRIL BURT

Psychotherapy Through the Group Process. DOROTHY STOCK-WHITAKER and MORTON A. LIEBERMAN. Atherton Press, New York, 1964, pp. 318. 68s.

THE conductor of a psychotherapeutic group, in addition to those clinical skills deriving from psychiatric practice, requires a systematic framework of concepts which take account of group dynamics. The authors of this important book try to provide this. Both worked with H. A. Thelen at the Human Relations Laboratory in Chicago, where Bion's conceptualization of group processes had been adopted in laboratory studies of group activity. Following Bion, the basic activity in groups was dichotomized into "work" (or enquiry) on the positive side, and "emotionality" (or acting-out) on the negative. Already thoroughly versed in categorizing group processes in terms which therapists recognize as valid, both authors have since worked as clinical psychologists in the Department of Psychiatry at the University of Chicago. Dr. Stock-Whitaker now lives in Leeds.

The authors propose a series of basic concepts with which to describe the method, processes and objectives of group psychotherapy. They emphasize that therapy groups represent a distinct psychiatric treatment procedure, quite different from two-person psychotherapy. This being so, new terms are called for, a different orientation is required in the therapist, and the goals which group patients should be expected to achieve also vary. The group therapist is called upon to identify and make use of group processes which play no part in dyadic psychotherapy. He concerns himself with the phenomena of group climate, group structure, group values, cohesiveness and changes in the status of members.

The authors state their theoretical approach, named by them "focal conflict therapy", in the form of 38 propositions. The *unit* of group activity is defined as a group focal conflict, a concept evolved by T. M. French. This is the period during which a single disturbing motive and its reciprocal reactive motive are prominent in the discussion; the unit is terminated by a successful solution to the conflict. An example which the authors analyse in detail is the portion of a session when the disturbing motive had been a bid by some members to be singled out as unique and to obtain special attention from the conductor; the reactive motive was the interference to this bid that other patients set up.

A group *theme* is defined as a series of focal conflicts each linked up by a similar disturbing motive, extending over the span of a number of sessions. One example provided was the impulse shown to reveal negative aspects of themselves. Another sequence of conflicts centred around sexual attraction on the part of members towards the conductor.

The group *culture* is made up of the successful solutions, taken collectively, by which the management of conflicts was achieved. An example of a culture in a group was the mode of operation adopted for a time by an adolescent group, in which one patient after another would proffer a problem, to be questioned and then counselled by all the other members; the patients managed their competition for the conductor's attention by taking turns in this manner.

The authors differentiate a formative phase, dominated by restrictive solutions; this is then followed during the life of a group by a more lengthy established phase during which there is continual modification of the group culture. Although restrictive solutions are still present, enabling solutions are more prominent—such as the expression of confidence that the conductor will handle any harmful consequence resulting from the expression of excessive emotion in the sessions.

The authors adopt further concepts, similar to those proposed by Ezriel, to specify the means whereby patients improve in groups. Each patient enters with a range of habitual solutions to personal conflicts. Some of these are maladaptive. As the member finds that his customary solutions prove ineffective in the group, he at length gives expression to behaviour which he had feared to exhibit. This, instead of evoking the disaster which he had always imagined would result, proves acceptable to his fellow members. Such new behaviour can then progressively replace the past maladaptive solutions. When mismanaged, a group serves to reinforce the patient's maladaptive patterns and is untherapeutic.

In the final chapters the authors acknowledge and review the work of those group theorists who have contributed to their formulations, chiefly Lewin, Foulkes, Bion, Ezriel and Frank. Their book cogently and lucidly defines the place of small group psychotherapy as a serious treatment approach. They do not explore the mutative possibilities of the technique as profoundly as some of their contemporaries such as Bion or Foulkes, nor do they report here any specific research findings, or attempt to quantify observations or to assess results as Taylor has done.

Their book will be approved by a wide circle of readers, both those clinicians for whom it will clarify how a group functions, and also those who had been waiting on such a text for teaching purposes.

H. J. WALTON

The Experience of Anxiety. MICHAEL J. GOLDSTEIN and JAMES O. PALMER. Oxford University Press, New York, 1963.

THIS series of case studies arises from the authors' experience with students of abnormal psychology. This is one of the most difficult subjects to teach particularly in its therapeutic aspect. The volume is because of this unusual and in view of the task must be approached sympathetically. It consists of a series of histories of neurotic disorders, character disorders, and psychoses, and a series of examples of childhood psychological studies.

The authors recount the presenting symptoms, and a detailed history of early life and development of the trouble in the family and social setting. All this is given in a natural narrative style conveying the reality of each problem. This is followed all too briefly by the therapeutic procedure and the outcome. Each case was the subject of a teaching seminar at which it was discussed, and therefore the chapters end with the sort of questions which the teacher put to his pupils to gauge how they viewed the story and what dynamic interpretations they were prepared to venture. In cold print these questions seem formal and conceptual and one would like to have seen a quasi tape recording of the seminar showing how teacher and pupil reacted not only to the material but to one another. Only by such a three-dimensional approach can one convey the living nature of this type of instruction. A useful study none the less, but it is a pity that the chapter titles have a too romantic note suggesting titles for films. The child studies are particularly good as the family scene is in each case well conveyed.

E. MILLER

Critical Essays on Psychoanalysis. S. RACHMAN (Ed.). Pergamon Press, Oxford, 1963, pp. 296 45s.

THIS is an *anti* book. It is, in other words, not concerned with weighing up the pros and cons of its subject, the theory and practice of psychoanalysis, but only with marshalling that part of the evidence which is unfavourable and condemnatory in nature. This is, of course, not to be taken as a criticism of the book, for the editor is quite entitled to make a selection along such lines, but it is clearly a point to be borne in mind when reading it and recommending it (as many will want to do) to others.

The book is made up of a number of articles which have been published elsewhere and some of which (such as Orlansky's review of the effects of early experiences on personality) have already become classics. The level of writing is highly varied, ranging from a most competent and serious examination of the scientific underpinnings of psychoanalysis by Ellis, to the personal accounts of their analytic treatment by two distinguished academic psychologists (included here, of course, because in both cases therapy was a failure). The combined battery of Eysenck and Boring, Wolpe and Dallenbach, Landis and the other authors found here, certainly makes for a powerful assault, beginning as it does with the Editor's claim that close inspection of psychoanalysis must now produce considerable disappointment in all but its most devoted adherents, and ending in the final chapter with a comparison of psychoanalysis with phrenology (both interesting and both really just hocus-pocus). It is rather disappointing to find that much of this criticism rests on scientific foundations every bit as slender as those it claims to find in psychoanalysis. Thus what weight are we to attach to those two personal accounts of analysis when we read that so much of psychoanalytic evidence is useless because it is anecdotal in nature, biased, and dependent on too few cases? In fact, if there is one impression with which the uncommitted reader comes away, it is of the enormous difficulty of scientifically demonstrating the utility or otherwise of such all-embracing theoretical concepts as those employed by Freud, and of proving the effectiveness of treatment procedures suggested for the cure of psychological disorders. It emerges, for instance, from a number of articles, that psychoanalysis as a therapeutic technique is probably highly inefficient in many respects and its rate of success still an unknown quantity, yet, as Bayley points out in this book, the same applies to most of the physical forms of treatment and also, one may add (despite the Editor's claims to the contrary), to reciprocal inhibition therapy. Extravagant claims by either side are simply not justified at this juncture and only serve to obscure the complexity of the issues involved.

Despite these shortcomings, the book is usefully provocative. It is vigorous and often to the point, and even the absence of an index, the typographical errors, and the lack of a date of original publication on many of the articles cannot detract from its utility.

H. R. Schaffer

Behaviour Research and Therapy. An International Multidisciplinary Journal. Prof. H. J. Eysenck (Ed.). Pergamon Press, Oxford, Vol. 1, No. 1, 1963.

This new journal which is dedicated to the behaviourist approach to therapy starts off in a crusading spirit and with a strong polemical colouring. Its standpoint stems from the Eysenck school of objective psychology which in its turn derives from Pavlov, Watson and the learning theory school.

This leadership stamps it as definitely anti-psychoanalytic and anti- that type of psychotherapy which rests upon the personal relationship of patient and physician. The outstanding claim of this behaviourist school is that the analysts are unscientific because they have not validated their claims to therapeutic success, that their methods do not stand up to statistical tests, nor can they, because of alleged subjectivity, open their findings to the scientific test. Nevertheless, despite the polemical atmosphere of this first number, the approach cannot be ignored, and the efforts to plan therapy by conditioning, particularly via reciprocal inhibition, must be examined by all clinicians whose first aim is cure and whose second aim and obligation is to frame a supporting theory.

Rachman's opening paper introduces the basic concepts of behaviour therapy, and Wolpe sounds the combative note in attacking psychoanalytic method and claims and heralds in the *New Science*.

To readers of the Journal of Child Psychology the papers which demand attention are those on the application of behaviour therapy to children. Firstly Lovibond's technique for treating enuresis by the two-signal auditory apparatus is regarded as an advance on the bell and metal bed pad, here called the classical method. He claims some good results, but with commendable scientific caution he admits that with all techniques the relapse rate remains high and further research is needed.

Levitt gives a survey of the statistical examination of claims for psychotherapy with children. This is an interesting article in as much as it considers as a quasi control group those children who were defectors, that is failed to attend for therapy or who withdrew too early to be therapy cases. While admitting that figures show no significant advantage from prolonged psychotherapy, he concedes that without a breakdown into diagnostic categories no conclusion can be safely drawn. It might be added that the variety of therapeutic approaches ought equally be specified and examined, e.g. play therapy, suggestion, and counselling for parents. Without these safeguards both the behavioural and psychotherapeutic approaches will not stand up to the so-called scientific method.

E. Miller

The Rorschach Index of Repressive Style. MURRAY LEVINE and GEORGE SPIVACK. C. C. Thomas, Springfield, Ill., 1964, pp. 180. $7.50.

IN THE early development of scoring of the Rorschach test, the direction of investigation proceeded from discerning particular classes of Rorschach response (wholes, movements, animals, etc.) to proposing a variety of psychological processes which they might reflect. Lately, an increasing number of studies has proceeded in the opposite direction, first selecting a psychological variable of interest (hostility, primary-process thinking, body-image firmness, etc.) and then developing a score from its Rorschach correlates, often by quantifying traditionally "qualitative" Rorschach features. Such an approach is made in this monograph, which starts from a definition of repressive style—"a property of ideation which predisposes one towards acts of repression, given the conditions of defensiveness"—and proposes a portmanteau Rorschach Index of Repressive Style (RIRS). RIRS is scored from seven aspects of the verbal associations: specificity, elaboration, impulse, primary process, self reference, movement, and organization. As in other recent studies, scoring instructions are detailed, explicit, and accompanied by many examples, and interscorer agreement is very good. Where this monograph stands alone is in the quantity and scope of research findings provided for its proposed index.

Eight chapters take up stability, validity, and normative aspects of RIRS, reporting findings cor ed from individual and group administrations of Rorschach, Behn, Harrower, and Holtzman blots to subjects of varied ages, normal and disturbed. (The authors are to be commended for their ingenuity in obtaining and rescoring of Rorschach records already collected by other investigators, to supplement their own samples.) Sections describe score variations resulting from blots and instructions used, from examiner characteristics (status, sex), and from such diverse subject conditions as sleep deprivation and hypnotically induced anxiety. Correlations are presented between RIRS and other test measures: traditional Rorschach scores, TAT variables, IQ measures, achievement and personality test scores. Chapters discuss sex differences and developmental trends. Subjects high and low in RIRS were compared on response to laboratory manipulations: sensory isolation, field-dependency measures, levelling-sharpening tasks. RIRS scores are presented for samples of patients with personality disorders: neurotic, psychotic, psychosomatic, delinquent.

In all these comparisons, the evidence is impressive that RIRS on the average functioned as expected: obsessives produced less repressed records than hysterics, low repressors showed less disturbance and more visual imagery under sensory deprivation, etc. The size of association, however, was never large enough to indicate that the function assessed in RIRS substantially corresponded to that expressed by any of the other measures. In a final chapter the authors review their research and their clinical experience with RIRS, giving a series of examples of the actions, fantasies, and conflicts of "high and low RIRS people", and somewhat reformulating their conceptions of the index, in terms of the availability of internal responses which can be put into language. Many users of the Rorschach will want to try adding this score to their psychograms, though its widest use for the present may be in research.

R. N. WALKER

Growth to Freedom. DEREK MILLER. Tavistock Publications, London, 1964, pp. 220. 30s.

THIS is a book about a therapeutic community planned for the rehabilitation of homeless ex-Borstal boys. Frank Foster, Director of the Borstal After-Care Association, had been concerned about such boys who, even when placed in family homes, broke down at times of crisis as they had never learned the art of personal relationships. Dr. Derek Miller, a psychoanalyst on the staff of the Tavistock Clinic, was equally concerned with the theoretical problems involved and with the aid of generous funds from a family trust, a demonstration project was set up and this book is an account of the results of the first 2½ years.

During this time 21 boys lived in the house. They were aged 17 to 20, of average intelligence and, in order to be selected, must have spent at least 5 years in institutions. Dr. Miller divides delinquency into situational, intra-familial, and personality forms. In the third the boy has to act out his problems and the boys accepted mostly fell into this group.

Up to 12 at a time, they lived in an ordinary house in a middle-class city area. It was planned as their home, with no visitors to be invited unless the boys chose them, a kitchen where they could get snacks when they felt hungry, a place to which they could bring their girl friends, and which they would wish to re-visit after they had left. While still at Borstal, they spent a week-end at the house, and if they liked the idea and were acceptable to the psychiatrist on the basis of a two-hour interview, they eventually came there, having agreed, (1) to pay their own way, (2) to attend the house-meetings, (3) to live decently.

Besides domestic staff, there were two social therapists, the warden (female), and the assistant warden (male, part-time). The psychiatrist was obviously the key figure and spent at least three or four hours in the house each week and was often on call at times of crisis.

About half the book is concerned with present-day views about delinquency and the problems resulting from institutionalization and various methods of training and therapy. The boys when they came were typical products of institutions, "greedy as babies, hyper-suspicious, withdrawn from the real world, perpetually anxious about being robbed or despoiled themselves and all too ready to do the same to others". The book tells how the boys behaved to each other, to the staff and to the psychiatrist. It gives a good idea of what staff have to put up with if they are really going to be friends with deprived boys. The psychiatrist had to spend a good deal of time supporting the staff who probably wished to see results too quickly. The chapter on group meetings is of special interest at a time when so many Homes are attempting various forms of group counselling.

The average length of stay was 39 weeks. It is difficult to assess results after only 30 months; the boys are, however, compared with similar groups of homeless boys and boys who returned to their own homes. Of the home controls 45 per cent were reconvicted, of the homeless 65 per cent, while of the boys of Northways only 38 per cent. Of the 13 boys from Northways who made a satisfactory adjustment, 9 married. During the same period only 3 out of the 11 boys in the homeless control group married and 5 out of the 14 in the home control.

This book is warmly recommended to all those concerned with institutionalized children, particularly to those who are trying to find ways and means of helping such children to become more mature and self-reliant.

R. F. Barbour

A History of the Care and Study of the Mentally Retarded. Leo Kanner. Chas. C. Thomas, Springfield, Illinois, 1964, pp. 150. $6.50.

In this small book Leo Kanner, the foremost child psychiatrist of the English-speaking world, presents a picture of the history of the care and study of the mentally retarded. This began in 1798 with the work of Itard on the Wild Boy of Aveyron. Before that there was nothing at all. Kanner writes briefly about Pereire and Itard, and later about the other two great French pioneers, Séguin and Binet. He has a moving description of the work of that brave and compassionate fighter for the handicapped and oppressed, Samuel Gridley Howe, and writes at greater length about the Swiss pioneer Guggenbuehl, who, he says, "must be acknowledged as the indisputable originator of the idea and practice of institutional care for feeble-minded individuals. The hundreds of institutions now in existence derive in direct line from the Abendberg" (Guggenbuehl's institution in Switzerland). The later chapters of the book touch on what he calls the era of institutional expansion in the different European countries and in America, and discuss early mental deficiency periodicals, the rise and significance of the eugenics movement, the emergence of clinical, and later aetiological, classification, and the "dawn of a new era" in the post-war world.

This is a brief but scholarly book, well documented, and bringing together much material which is not easily accessible. It is particularly good on the German contribution to the subject, though it says less about the French pioneers—whose work is, however, already better known to English readers. The book does not cover the same ground as Stanley Powell Davies' *Social Control of the Mentally Deficient* (1939) which treats the subject from a sociological standpoint, but it complements Davies' book. All who are interested in the history of the subject will enjoy this book, and learn from it.

J. Tizard

Guide to Psychiatry. MYRE SIMS. E. & S. Livingstone, Edinburgh and London, 1963, pp. 863. 55s.

THE author has set out with the admirable intention of presenting a textbook which combines classical descriptive psychiatry and dynamic principles. However he includes a great many extracts from other authors. At first attractive, these eventually confuse more than they add to the text, and detract from the author's own unusually clear style.

All too frequently a chapter on a special subject in a general textbook gives the impression that it has been included more for the sake of completeness than from any particular interest in the subject. Unfortunately the chapter on child psychiatry in this book is no exception, although it is admittedly a difficult subject to present in a short textbook. The selection of the material seems haphazard and leaves the reader without any real sense of the subject as a whole. Many of the commoner disorders found in children receive no mention at all. As an example of the uneven emphasis, a quarter of a page discusses reactive behaviour disorders in children, in which phobic states are briefly mentioned. Then follows a further quarter page on neurotic behaviour disorders, half of which concerns compulsive masturbation; and then two and a half pages on sexual assaults on children. After very brief reference to some aspects of the etiology of enuresis one has to read four pages further before finding a discussion on its incidence and other possible etiologies, under the heading of "Regime".

This book cannot be recommended as a general textbook for students; it is however an excellent and thought-provoking book for the post-graduate who already has an overall knowledge of the subject. Its excellent index and bibliography make it a most useful reference book.

G. F. VAUGHAN

Perceptual and Visuo-motor Disorders in Cerebral Palsy. M. L. J. ABERCROMBIE. The Spastics Society in Association with W. Heinemann (Medical Books), London. 1964, pp. 136. 25s.

DR. ABERCROMBIE's book consists of two parts, the second of which is devoted to summaries, some very detailed, of 64 studies relating to the perceptual and visuo-motor disorders of cerebral palsied children. In the first part she brings together the findings of these (and some other related studies) in order to discover the extent of agreement about the nature of the disorders, their incidence and the physical handicaps of the children who show them. Dr. Abercrombie refers to the point that most of the disorders described are visuo-motor rather than 'perceptual'. She considers how far the disorders can be shown to be specific, and suggests that impaired performance may often be due to the interaction of mature and immature levels of functioning. Almost all findings concerned with incidence indicated that the disorders occurred more frequently among spastics than among athetoids. But few researchers were found to make any attempt to specify the degree of impairment they termed as 'disorder'. Surprisingly few also dealt in detail with the association between the disorders and physical handicap. Dr. Abercrombie discusses the possible effects of distortion and reduction of experience on perceptual development.

After this examination of the studies, Dr. Abercrombie considers the research methods used. She traces many of their shortcomings to the group comparison approach necessitated by the research time limits of the "Ph.D. industry". This approach she feels does not adequately consider either the particularity of the subject or that of his performance. She pleads for more longitudinal research based on teamwork between educators and research workers. In a further chapter there is a useful classified list of the tests used in the studies.

This book undoubtedly provides the most thorough treatment of the subject to date, in an arrangement that is the model of clarity. It will be invaluable to all who work in this field.

K. WEDELL

Relationship in Casework. Published by the Association of Psychiatric Social Workers, London, 1963, pp. 64. 6s. 6d.

THIS small booklet contains six excellent articles dealing with psychotherapy and social casework. It is well written in simple language which is free from jargon, and there is a freshness and spontaneity in the presentation which makes one want to go on reading. The articles are individual contributions reflecting discussions which took place within the Association of Psychiatric Social Workers between 1952 and 1956; five contributors are psychiatric social workers and the sixth is a psychoanalyst.

No matter what the field, it always bothers me to read expositions of theory by people who have had little practical experience, and so are writing from a kind of vacuum. It was, therefore, a particular delight to recognize that these six articles came from people with considerable clinical experience who drew their conclusions from the material before them, whether the setting in which they worked was a child guidance clinic, a mental hospital, an out-patient department, the Family Discussion Bureau, or the field of community care. All the writers are close to the reality of their medium and have come up against the complicated problems that arise when one tries to meet both inner and outer needs. They have included case material which gives a sensitive account of the use of relationship.

The book contains so much of value that it would be a pity if its readers were limited to those engaged in social work. I have no hesitation in recommending it to anyone who is interested in relationships and their use on a professional level. At the minimal cost of 6s. 6d., this small publication is of outstanding value.

F. M. MacNamara

J. child Psychol. Psychiat., Vol. 6, 1965, pp. 71 to 83. Pergamon Press Ltd. Printed in Great Britain.

CLASSIFICATION AND CATEGORIZATION IN CHILD PSYCHIATRY*

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INTRODUCTION

A GENERALLY acceptable classification of psychiatric disorders which occur in childhood is urgently needed and the lack of such a classification has been a severe obstacle to progress in child psychiatry. A classification is a kind of language which facilitates communication between different professional workers. In its absence communication is likely to be beset with misunderstandings and misinterpretations; the comparison of psychiatric observations and the interchange of ideas will be seriously hampered. Without a common terminology and ordering of material, studies at different clinical or research centres cannot be compared one with the other. Until a disorder can be identified and characterized it cannot be adequately studied. This means that we cannot wait for more information to become available before we develop a classification. Indeed, if we do wait, such information is not likely to be forthcoming.

The classification of adult mental disorders is unsatisfactory (Stengel, 1959) but the situation in child psychiatry is worse. Child psychiatry is still a relatively new discipline without the accumulated knowledge necessary for a classification which will stand the test of time. However, that in no way lessens the need for a tentative classification as a beginning. From this better schemes can be developed as further knowledge becomes available.

The increasing recognition of this need is reflected in the recent publication by the American Psychiatric Association of a report on "Diagnostic Classification in Child Psychiatry" (Jenkins and Cole, 1964). This includes a classification derived from the deliberations of the Group for the Advancement of Psychiatry (Langford, 1964), which constitutes a decided improvement over most previous schemes. Unfortunately, it is, to some extent, still based on a mixture of phenomenology and theoretical assumptions. It also contains some bewildering contradictions—such as 'anxious personality' as the first subcategory of 'personality disorders . . . with minimal subjective anxiety'. However, what is important are not the details of the scheme but rather the evidence that it provides of a developing concern with the issues of classification.

There are several reasons why child psychiatrists have failed to agree on a common classification. Some have felt that there is little point in distinguishing between different conditions (Szurek, 1956) or that classification tends to obscure

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individual differences and prevent a more penetrating understanding of disorders (Huschka, 1941). Of course, it is very important to consider each patient as a unique individual with his own particular attributes and life history. But, it is also necessary to consider those characteristics which he shares with others, and it would be a retrograde step to regard every patient as *entirely* individual (Kanner, 1959). A diagnostic classification should be able to convey important and relevant information about the patient, but one should not expect it to say all that is relevant or important. Classification is not the same as a diagnostic formulation. An adequate formulation should include statements about the type of disorder, the manner of its development, its aetiology, prognosis, and likely response to treatment, but clearly all this cannot be encompassed in a classification which has only the more modest aim of ordering the material in such a way that it can be communicated to others.

Some workers have tried to base classification on a theoretical framework such as psychoanalysis; Anna Freud has produced a diagnostic categorization based on the child's libidinal development (Freud, 1962). Other theories have led to other classifications. For example, Eysenck (Eysenck, 1960, Eysenck and Rachman, 1965), on the basis of learning theory, has attempted to classify disorders in terms of personality variables such as neuroticism or extraversion. In support of his classification he has cited factor analytic studies of symptoms. However, there is no satisfactory evidence to suggest that the symptom clusters are measures of enduring aspects of personality rather than measures of a temporary disorder of behaviour which may have little relationship to the child's temperament. Furthermore, at the moment, the theoretical construct used lacks experimental support as far as children are concerned and it is not generally accepted. A theoretical basis for classification is certainly desirable, but as yet no theory has gained sufficient general support for it to be used as the basis of a diagnostic scheme. Alternative approaches must be taken.

Other psychiatrists, such as the late Dr. Kenneth Cameron, have produced ways of categorizing children according to their symptomatology (Cameron, 1955 and 1958). His scheme allowed a ready description of the child's disorder, and this marked an advance. However, this grouping of disorders was not based on any known relationship between symptoms, and although the scheme categorized various aspects of the child and his disturbance, it did not provide any overall classification of the disorder.

If we accept that it is imperative to have a classification we must search for information about disorders in childhood from which a classification can be derived, and that is my purpose in this paper. The present aim is to discuss some of the research findings upon which an acceptable classification might be based, and not to provide such a classification.

The principles of classification have been clearly outlined by Hempel (1961) and the advantages and disadvantages of different approaches were fully discussed by Jaspers (1962) in his classical text. The factors which could provide the structure for an ideal diagnostic scheme are undecided and are a function of the purposes for which the classification will be employed (Rutter, 1963). Two points must be made clear at the outset. Firstly, there is no 'natural' scheme, and secondly, classification in no way implies the existence of disease entities (Jaspers, 1962). Continua of personality characteristics or tempo of maturation may be classified just as 'illnesses' are. The child is a developing organism and it is essential that the classification take this into account. Maturation sometimes causes the same abnormality to manifest itself in different ways at different ages. For example, children who are severely *over*active at age 7 years are often *under*active at 17 years (Rutter, 1965). An additional problem is that what is abnormal at one age may be normal at another (e.g. enuresis).

Although aetiology is probably an indispensable part of any adequate diagnostic scheme it is unlikely to be sufficient in itself. For example, a classification of fractures based only on the causative agent would have failed to encompass the crucial distinctions between injuries where there is disruption of the skin, or trauma to internal organs, and those where there is not. It is also certain that disorders can be defined before the aetiology is known. John Snow made his classical study of cholera well before the cholera vibrio had been discovered. Indeed, one might go farther and say that advances in our knowledge about aetiology are likely to be slow until we can identify and classify disorders. A further problem with a purely aetiological classification is that the same agent may lead to very different outcomes (e.g. tertiary syphilis). In our present state of knowledge it is likely that any classification will have to be largely based on behavioural manifestations, but it should be noted that the same clinical picture may be due to many different aetiological factors (e.g. dementia).

Finally, before proceeding to a survey of relevant research findings three principles must be stated:

1. If the classification is to be acceptable it must be based on facts not concepts, and it must be defined in operational terms.
2. If it is to be useful it must convey information relevant to the clinical situation and it must have predictive value.
3. The aim is to classify disorders, *not* to classify children. Just as children may have measles one year and scarlet fever the next, equally it is possible that children may have one kind of psychiatric disorder at 5 years and another at 12 years.

SYMPTOM CLUSTERS

Of all the diagnostic distinctions made in child psychiatry, perhaps the most universal has been between 'conduct problems' by which is meant antisocial or aggressive behaviour, and 'personality problems' which refer to emotional or neurotic disorders (e.g. Ackerson, 1931 and 1942; Becker *et al.*, 1962; Paynter and Blanchard, 1929; Peterson, 1960 and 1961). The terms are somewhat unfortunate in that there is no good reason to suppose that neurosis is much more closely related to personality than is antisocial behaviour (Kanner, 1957). Nevertheless, although the terms may be somewhat misleading the distinction between neurotic disorders and antisocial disorders has appeared in nearly all symptom cluster or factor analytic studies (Peterson, 1961; Collins *et al.*, 1962; Eysenck and Rachman, 1965), and it has been argued that if symptoms tend to correlate or 'go together' they should be classified together. The distinction has been shown to be important in relation to delinquency (Mulligan *et al.*, 1963). Whereas delinquent boys have a strikingly high rate of aggressive symptoms, they do not differ from the normal population in terms of neurotic type maladjustment.

Diagnostic groupings based on symptom cluster studies have also been shown to be important in relation to the family background. On the basis of intercorrelations between symptoms, Hewitt and Jenkins (1946) distinguished three types of disorder:

1. 'over-inhibited behaviour' (a neurotic type disorder);
2. 'socialized delinquency', where the child stole and truanted but was on good terms with his peers, and
3. 'unsocialized aggressive behaviour'.

Unsocialized aggression was found to be associated with parental rejection, socialized delinquency with neglect and bad company, and neurotic behaviour with parental repression and constraint. These relationships were confirmed in a subsequent and separate study by Lewis (1954).

Unfortunately there are one or two drawbacks associated with the Hewitt and Jenkins classification. Habit disorders were excluded so that this group was not studied. Even so, many children still did not fall into any of the three categories. Further, the criteria for 'unsocialized aggressive behaviour' and 'socialized delinquency' were somewhat changed in the replication study (Jenkins and Glickman, 1946) so that the differentiation between the two antisocial categories is slightly dubious. However, the clear distinction between neurotic disorders and antisocial disorders remains.

RESPONSE TO TREATMENT

The same distinction appears in studies of the short-term response to treatment. Eisenberg and his colleagues found that 2 out of 3 children with neurotic symptoms improved significantly following a brief course of supportive psychotherapy, in comparison with a much smaller proportion of hyperkinetic or antisocial children (Cytryn *et al.*, 1960; Eisenberg *et al.*, 1961). Thus, children with antisocial and neurotic disorders were again distinguished, but in addition a hyperkinetic group was also separated from neurotic disorders. Amphetamine sulphate sometimes produces a remarkable tranquillizing effect on hyperkinetic children (Bradley and Bowen, 1941; Eisenberg, 1964). It is likely that this too is a feature which distinguishes hyperkinetic from neurotic or antisocial disorders, but reliable comparisons have not been made.

Child psychosis is differentiated from all other psychiatric disorders by its much worse response to treatment.

LONG-TERM PROGNOSIS

The long-term prognosis is also relevant to problems of classification. Neurotic disorders usually carry a good prognosis, whereas children with aggressive antisocial disorders do much less well with a significant proportion continuing as delinquents or becoming schizophrenic (Morris *et al.*, 1954; Morris *et al.*, 1956). The most comprehensive long-term follow-up study was carried out by O'Neal and Robins (1958 and 1960). They examined several hundred adults who had attended child guidance clinics in the United States some 30 to 35 years earlier. They also examined a smaller number of adults who, as far as was known, had presented no problems of behaviour in childhood. On the basis of the original clinic records the patients were divided into 3 groups: (1) neurotic children, (2) delinquents and (3) antisocial children who had not come before the Courts. These three 'abnormal' groups were compared with the fourth 'control' group, those who had not had any psychiatric disorder in childhood. Approximately 3 out of 5 control subjects were considered psychiatrically normal as adults as against 2 out of 5 neurotic children, 1 out of 3 antisocial and 1 in 4 delinquent children. In the main, delinquent children became criminal or sociopathic adults with a high rate of social and marital difficulties (over half were divorced). The antisocial children who had not been before the Courts at the time they attended the child guidance clinic, also included an excess of criminal and sociopathic adults, but the proportion was less than for the delinquent children. More striking was the fact that 1 in 5 had become psychotic, although few of these had received psychiatric care. The outcome for the neurotic children was similar to that for the controls except that there was a slightly higher proportion of adults who had been neurotic as children in each of the abnormal categories. However, it was particularly noteworthy that the proportion of adult neurotics was quite similar for those who were neurotic and for those who were normal as children. Thus, again children with neurotic and antisocial disorders were clearly distinguished. In addition, there appeared to be a sub-group of antisocial children who developed into schizophrenic adults. However, it should be noted that schizophrenia tends to include a wider range of disorders in the U.S.A. than it does in England, and the authors have not yet published details of the kind of abnormalities shown by those adults who were antisocial in childhood.

A slightly different approach to the same general problem has been followed by Pritchard and Graham (1965). They compared, within a group of patients who had attended the Maudsley Hospital both as children and as adults, the type of disorder present on the two occasions. They found that the majority of the neurotic children had become neurotic adults, and the majority of delinquent children presented with some form of antisocial or psychopathic behaviour in adult life. Nevertheless, there was some overlap in that a number of antisocial children developed depressive or neurotic reactions in later life. Also, in contrast to the O'Neal and Robins study very few antisocial children developed schizophrenia. This finding may reflect diagnostic differences between Great Britain and the United States. By definition, all the children had psychiatric disorder as adults, so that no conclusion can be drawn concerning the incidence of adult mental illness among people who have attended child guidance clinics. However, what is clearly shown is that *if* the children develop psychiatric disorder in adult life it is usually (but not always) of a type similar to that which they exhibited as children. Again, the distinction between neurotic and antisocial disorders appears.

Child psychosis is also very clearly distinguished from other disorders by the long-term prognosis. With our present treatment facilities very few psychotic children recover, a larger number achieve some kind of social adjustment but nearly half remain in a long-stay institution (Eisenberg, 1957; Rutter, 1965). About 2 out of 5 fail to gain any useful speech and those whose speech does improve are often left with abnormalities of articulation. A further differentiating feature is that a proportion, 1 in 6 in one study (Rutter, 1965), develop epileptic fits—usually in early adolescence. Of all the psychiatric disorders of childhood, psychosis is the most clearly differentiated from all others by long-term outcome. The course of child psychosis which develops in early childhood is also very different from the adult-type schizophrenia which begins in adolescence (Rutter, 1965).

AETIOLOGY

We are still far from the situation where specific disorders can be related to specific aetiological factors. Most research has emphasized the very diverse consequences of factors harmful to the child's behavioural development. The stereotypes of the 'brain damaged' child, and of 'affectionless psychopathy' as the usual end-result of prolonged maternal deprivation have had to be abandoned (cf. Bowlby *et al.*, 1956; Birch, 1964).

Nevertheless, aetiological studies have provided some data which are relevant for classification. The association between parental variables and the type of disorder shown by the children, which was found in the Hewitt and Jenkins (1946) study, has already been mentioned. Disruption of the home by death, divorce or separation of the parents is sometimes associated with the development of psychiatric disorder in the children. Most studies have shown that when this occurs the child usually develops an antisocial disorder rather than a neurotic disorder (Wardle, 1961).

There are no behavioural disorders which are invariably associated with cerebral dysfunction or 'brain damage', but two—child psychosis and the hyperkinetic syndrome—are distinguished from other psychiatric disorders in childhood by the high frequency of their association with neurological abnormality. About 1 in 2 psychotic children have evidence of cerebral dysfunction, although the evidence does not always appear until late childhood. Sometimes the dysfunction is shown by the development of epileptic fits in early adolescence (Rutter, 1965).

The situation with regard to the hyperkinetic syndrome is somewhat similar. However, there are the added difficulties that overactivity is found in many disorders and that a high level of activity is normal in young children. Some psychiatrists refer to any disorder with overactivity as 'hyperkinetic', but what is meant here is a syndrome characterized by *severe* and disorganized overactivity together with impulsiveness and a very short attention span and often extreme distractibility. Aggressive behaviour is also frequently part of the clinical picture. This kind of disorder is often associated with epilepsy or other evidence of neurological abnormality (Ingram, 1956). Differences in the photo-metrazol threshold have been described (Laufer *et al.*, 1957) and abnormalities in intellectual functioning are common (Eisenberg, 1964). It seems very likely that brain dysfunction or damage is an important aetiological factor in many, if not most, cases of hyperkinetic disorder. However, it has been argued that the symptoms are merely those appropriate to the child's mental age and are thus related not to brain damage, but to low intelligence (Pond, 1965). This argument has force in that in most hyperkinetic children the intelligence level is rather low, but there are two main objections to it. In the first place, children of normal or even above normal intelligence can have a hyperkinetic disorder at an age when overactivity is clearly inappropriate for the mental or chronological age. In the second place, among subnormal children, hyperkinesis is usually found in those who have evidence of brain damage as well, *not* among those without such evidence (Rutter and Graham, 1965).

To summarize so far, symptom clusters separate neurotic and antisocial disorders. The two groups also differ somewhat in aetiology, and both can be distinguished from child psychosis and the hyperkinetic syndrome in which brain damage is frequently an important causal factor. Response to treatment also differentiates these four groups. The hyperkinetic syndrome and child psychosis are dissimilar not only in symptomatology but also in long-term course, child psychosis carrying the worse prognosis.

EPIDEMIOLOGY

Findings important for classification purposes also come from epidemiological studies. All investigations have shown the very high prevalence of individual symptoms such as fears, temper tantrums and enuresis (Mensch *et al.*, 1959; Lapouse and Monk, 1958) so that psychiatric abnormality should not be inferred on the basis of single items of behaviour.

Perhaps the most important result of these investigations has been the finding that several items of behaviour which have been thought to be indicators of maladjustment, are not. Developmental conditions such as enuresis or speech disorder have been found to have no significant association with psychiatric disorder (Mensch *et al.*, 1959; Tapia *et al.*, 1960). No significant relationships were found between enuresis and an overall measure of maladjustment nor between enuresis and any other symptom. Similarly thumb-sucking and fears were also unrelated to maladjustment. Among children attending a psychiatric clinic these symptoms are often part of a general disorder but this is a function of the biased sample of children that we see at clinics. These epidemiological findings suggest that certain developmental disorders such as enuresis and speech disorders, when they occur in isolation, should be classified separately from neurotic, antisocial and other disorders.

AGE AND SEX TRENDS

Different kinds of disorders present at different age-periods in childhood (Macfarlane *et al.*, 1954; Grant, 1958). The existence of large differences in prevalence and in age-trends suggest the need for differences in classification. Developmental disorders such as enuresis, speech disorders, and sleep disturbances are characteristic of early childhood. They become increasingly rare among older children, with the main decline in frequency occurring before the age of 6 years. In contrast, delinquency and sexual abnormalities are much more characteristic of later childhood and adolescence. Overt neurotic disorders are also much commoner among elder children. On the other hand, tearfulness and jealousy are disorders of young children, while shyness and fears are at their peak in middle childhood.

Nearly all psychiatric disorders are considerably more common among boys than girls (Ullman, 1952; Lapouse and Monk, 1958). The main exceptions to this general sex-difference are timidity and fears, which occur with about the same frequency in the sexes or are slightly commoner among girls (Lapouse and Monk, 1959).

Of the age and sex differences the most important for purposes of classification is the age trend for developmental disorders (i.e. a decrease with increasing age) which stands in sharp contrast to the increasing incidence with age of many other disorders, especially neurosis and delinquency.

MENTAL SUBNORMALITY AND EDUCATIONAL RETARDATION

Two large groups of disorders have not yet been mentioned—mental subnormality and educational retardation. Both are very important conditions for the child psychiatrist but attention in this paper has been confined to behavioural disorders. Mental subnormality is not a single condition but rather a heterogeneous group of conditions. The chief distinction, in terms of the approaches considered, between mental subnormality and disorders of behaviour is the importance of both specific and general abnormalities of the brain in the aetiology of subnormality, especially severe subnormality (Kirman, 1965). Mental subnormality may be associated with any of the psychiatric disorders already considered.

Educational retardation is also an admixture of different disorders. Even 'specific' varieties of retardation such as reading disability form a very heterogeneous group. Retardation may be genetically determined, it may be associated with various perceptual defects, it may follow injury to the brain, it may form part of a psychiatric disorder, or be the result of cultural or educational deprivation, or other unknown factors (Money, 1962). Thus, many neurotic and delinquent children are significantly retarded in their educational progress but also it is probable that most educationally retarded children do not have any psychiatric disorder. The classification of varieties of educational retardation is still very unsatisfactory but it is clear that there is a sizeable group of children who are backward in their schooling but who are not neurotic, delinquent, or intellectually subnormal (Money, 1962). The size of this group is unknown but it should be distinguished from mental subnormality and from other psychiatric disorders.

SEVERITY AND DURATION OF DISORDERS

The severity and duration of disorders have been little explored in relation to prognosis or response to treatment, but clearly severity is a necessary parameter in any classification. Its utility has been most evident with respect to mental subnormality, where the distinction between an I.Q. below 50 and one above this point is of proven value (Penrose, 1949; Tizard, 1965). 'Organic' pathology of the brain is much more important in the aetiology when the subnormality is severe, and the distinction is also of considerable predictive value in terms of response to training, education, and employment. It is scarcely necessary to add that although in this connection an I.Q. score of about 50 is a most useful cut-off point on the continuum of measured intelligence, it is an arbitrary point on a continuum and distinctions in the area immediately around whatever cut-off point is used are necessarily weak.

The level of intelligence is also of predictive value in relation to child psychosis, both in terms of social adjustment in adult life and in terms of speech development (Rutter, 1965). Again an I.Q. score of about 50 seems the most useful place to draw the line—the prognosis is much better for children with measured abilities above this level. Of course, in part, this may be a function of currently available services which are usually much better for the more able child who can be retained within the school system. Another measure of 'severity'—the presence of useful speech at the age of 5 years has also been found to have predictive value (Eisenberg, 1957), although this may be partly due to the positive correlation between I.Q. and speech development (Rutter, 1965).

Fish has developed a typology of child psychiatric disorders in which 'severity of integrative defect' forms the major variable. Preliminary findings suggest that this may have value in the prediction of responses to drug treatment (Fish and Shapiro, 1964).

Every clinician distinguishes between mild neurotic, antisocial or other disorders which are only a little outside the limits of normality, and more serious disorders of rather similar symptomatology but a worse prognosis. The milder conditions have sometimes been classified under terms such as 'situational reactions' or 'reactive disorders'. However, even the severest disorders may have developed in response to environmental stresses and, conversely, mild disorders may be associated as much with factors in the child as with the environmental situation (Rutter *et al.*, 1964). The American Group for the Advancement of Psychiatry laid emphasis on the absence of 'internalized conflict' to define the milder disorders (Langford, 1964) but this presupposes an acceptance of a particular theoretical framework and thus violates the first principle suggested earlier, namely, that to be acceptable a classification must be based on observable behavioural signs, not concepts.

Studies utilizing behavioural questionnaires (Mensch *et al.*, 1959; Mulligan, 1964) have shown that the number of symptoms gives some measure of severity, but it is a crude and not altogether satisfactory measure. Duration of symptoms has been shown to be important (Mulligan, 1964) and clinical experience suggests that, especially in the older child, it is necessary to take personality characteristics into account.

Enough is known to suggest that severity and/or duration of disorder should form one parameter in any adequate diagnostic classification but it is not yet clear what is the best way of measuring severity.

CONCLUSIONS

In summary, symptom cluster and factor analytic studies, investigations of treatment, of long-term prognosis, and of aetiology, epidemiological studies, and investigations of age and sex trends in behavioural development, have all produced findings which are relevant to the production of a classification of child psychiatric disorders. A few studies of each kind have been briefly considered.

Although I am not putting forward a detailed or complete classification, I would like to try to draw together the main findings in the form of an outline which might form the basis for such a classification.

1. *Neurotic disorders* can be differentiated in terms of symptom clusters, response to treatment, long-term prognosis, family background and aetiology from the other large group—that of:
2. *Antisocial or conduct disorders*. The differentiation between these two groups appears so often that it seems very likely that the distinction is of fundamental importance. It should be emphasized that the differentiation occurs when overt behaviour is considered. Delinquency may occasionally be secondary to a frank neurotic disorder and it may sometimes have a neurotic basis in terms of unconscious conflict (Glover, 1960), but the findings strongly suggest an important dichotomy between neurotic and antisocial disorders. Although most children present with a preponderantly neurotic or preponderantly antisocial clinical picture there is an overlap which necessitates a

3. *Mixed group* in which neither neurotic nor antisocial symptoms predominate.
4. *Developmental disorders* such as enuresis or speech abnormalities (sometimes called habit disorders) can be differentiated in terms of epidemiological findings and age-trends. These disorders may be part of a neurotic or antisocial disturbance, but when they occur in isolation they should be classified separately. It should be noted that this category is itself rather heterogeneous and in need of further subdivision.
5. *The hyperkinetic syndrome* can be distinguished in terms of response to treatment and its association with neurological abnormality.
6. *Child psychosis*, with an onset before pubescence, stands out as different from other psychiatric disorders by its response to treatment, long-term course, and its association with cerebral dysfunction. Psychosis has some similarities to the hyperkinetic syndrome, but, apart from differences in symptomatology, the long-term outcome differentiates the two conditions. It is also different from
7. *Psychosis developing at or after puberty* which is similar to schizophrenia as it occurs in adult life. In addition
8. *Mental subnormality* and
9. *Educational retardation as a primary problem* should be distinguished. Both categories require further subdivision. To what extent it is justifiable to separate
10. *Depression* and
11. *Adult-type neurotic illnesses* from the neurotic behaviour disorders remains uncertain. They are rather different in their phenomenology and the age at which they occur but the differences in long-term course remain largely unexplored.

This outline of a classification is purely phenomenological and operational definitions could easily be provided for each of the groups. Accordingly it would be relatively simple to apply to the individual case. However, it is probable that most of the categories require further subdivision and the scheme is no more than a basis for a classification which is likely to be superseded as further information becomes available. What value it has now lies in its utility as a means of communication and of ordering material. The groupings convey information about the type of disorder, its prognosis and the factors which may have been important in its development. This is likely to be useful in planning treatment although there is no direct and invariable relationship between diagnosis and the type of therapy. The most scientific interest is likely to be found in discrepancies in the classification which may form the basis for posing further clinical and research questions (Jaspers, 1962), which should themselves lead to better classifications.

SUMMARY

The need for a classification of child psychiatric disorders is emphasized and the principles of classification are briefly discussed. Research findings concerning symptom clusters, response to treatment, long-term prognosis, aetiology, epidemiology, age and sex trends, and severity and duration of disorders are reviewed in relation to their implications for classification. An outline for a possible classification is suggested.

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STABILITY AND CHANGE IN ABILITIES UP TO FIVE YEARS: GROUP TRENDS

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INTRODUCTION

In the absence of British longitudinal studies of ability in normal children from infancy to school age, it has been necessary to rely largely on American findings. The present paper goes some way to meet this deficiency, following a preliminary report (Hindley, 1962a), by presenting data based on the same group who were tested with the Griffiths Scale of Infant Development (Griffiths, 1954) at 6 and 18 months, and the Stanford Binet at 3 and 5 years. Results up to 18 months have already appeared (Hindley, 1960).

Here, we present mean scores at each age, intercorrelations between scores at different ages, and examine sex and social class differences in the course of development during this period. From these, comparisons are made with American findings and evidence is provided on the predictive value of the Griffiths Scale. A sequel will be concerned with individual developmental trends.

LITERATURE

Results on the predictive value of tests of development and abilities between 6 months and 5 years have been reviewed by J. E. Anderson (1939), MacFarlane (1953), Jones (1954), Hindley (1962b), and Fowler (1962), amongst others. Results covering all or most of this period have been reported by Bayley (1933, 1949), Nelson and Richards (1939), L. D. Anderson (1939), Cattell (1940), Honzik *et al.* (1948), Wittenborn *et al.* (1956), Cavanaugh *et al.* (1957). Other studies covering parts of the period include Ebert and Simmons (1943) from 3 years onwards; Lézine (1953) from 12 months to 4 years: and Filliozat-Cosson (1957), Hindley (1960), Fischer (1960), up to 18 months or 2 years. It is noteworthy that all the references cited except the last three, and that of Lézine, are American.

Jones (1954) notes that correlations between infancy tests given before 12 months with scores from 4 years onwards on the Stanford-Binet tend to be around zero, or even negative. After 12 months, the tendency is for correlations gradually to rise. L. D. Anderson (1939) and Cavanaugh *et al.* (1957) report values for 18 months vs. 5 yr of about 0·2, and they and Honzik *et al.* (1948) give values for 2 yr vs. 5 yr, ranging from 0·24 to 0·45. On the Stanford-Binet itself, correlations between 3 and 5 yr scores are considerably higher, attaining 0·57 (Cavanaugh *et al.*, 1957) to 0·67 (Ebert and Simmons, 1943).

The existence of considerable differences in intelligence among adults and school children according to parental status, whether by educational, occupational, or

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I.Q. criteria, has long been known (Burt, 1937, 1943; Fleming, 1943; Eells *et al.*, 1951; Jones, 1954). The most recent British study, based on a nationally representative sample of school children, is that of Douglas (1964).

There appears to be no British literature on the emergence of such differences in infancy, other than on their absence up to 18 months (Hindley, 1960). The considerable body of American literature was reviewed by Jones (1954), and subsequent results have been reported by Bayley (1954), Honzik (1957, 1963), Moss and Kagan (1958), Kagan and Moss (1959). In general there is little or no association of abilities with parental status in the early years, but by ages varying from 2 to 3 yr it has become significant. With parental education, correlations have been reported of 0·29 at 21 months, to 0·58 at 5 yr (Bayley, 1954); and with mother's education, of below 0·10 at 2 yr to 0·35 at 5 yr (Honzik, 1957). Honzik has since found significant sex differences, with girls showing a positive relationship to parental status earlier than boys. Kagan and Moss (1959) likewise found a significantly higher correlation between maternal education and I.Q. in the case of girls than boys, and a tendency in the same direction with respect to father's education. At 3 yr Kagan and Moss (1959) obtained correlations between parents' and children's I.Q.s ranging from 0·32 to 0·59, and at 6 yr of a similar order. Similar associations have been found with other measures of parental socio-cultural status (Jones, 1954). Bloom (1964) has recently related the effects of environment to the level of development of different functions at different ages.

METHOD

The whole sample of children in the Child Study Centre Longitudinal Research (Moore, Hindley and Falkner, 1954) was tested with the Griffiths Scale (Griffiths, 1954) at 6 months and 18 months, and with the Revised Stanford-Binet, Form L (Terman and Merrill, 1937), at 3 yr and 5 yr. The sample can be divided into two halves (Group A and Group B) according to which of the two psychologists (C.H. or T.M.) had most dealings with it. Each investigator tested his own sub-sample with the Griffiths Scale, but T.M. tested all cases at 3 yr and C.H. tested all cases at 5 yr (Table 1).

Table 1. Tester (C.H. or T.M.) of the two sub-samples, at different ages

Sub-sample	Boys	Girls	Total	Tester			
				6 months	18 months	3 yr	5 yr
				(Griffiths)		(Terman-Merrill)	
Group A	21	19	40	C.H.	C.H.	T.M.	C.H.
Group B	22	18	40	T.M.	T.M.	T.M.	C.H.

Details of the infancy testing procedure have already been published (Hindley, 1960). At all ages, a note was made of any test-result which the investigator regarded as being of doubtful validity, on account of poor co-operation, emotional upset, ill-health, etc., of a temporary kind. Instances when it was felt that a child's ability in general was being impaired by such prevailing personality characteristics as excessive caution or timidity were not regarded as invalid assessments, on the grounds that the child's performance on the test could be regarded as being typical of him.

THE PRESENT SAMPLE

The general characteristics of the initial longitudinal sample have been reported previously (Moore *et al.*, 1954). An important difference from most of its American counterparts is that it is much more representative of the social composition of the parent population.

TABLE 2. TESTING HISTORY OF THE 201 CASES IN THE SAMPLE AT 6 MONTHS

Age of test	6 months	18 months	3 yr	5 yr
'Clean' cases (validly tested at all ages)	80	80	78*	79†
Others validly tested at this age, within time limits	77	74	71	62
Others validly tested at this age, outside time limits	4	1	3	6
D.Q. or I.Q. of doubtful validity	17	18	19*	19†
Child seen but D.Q. or I.Q. unobtainable	3	1	6	3
Not seen	20	16	0	1
Left sample	—	11	24	31
Total in sample	201	190	177	170

*2 cases of minor invalidity at 3 yr. †1 at 5 yr. subsequently included in 'clean' sample to make totals of 'clean' cases 80 at each age.

To avoid the pitfalls of using different cases at different ages (Anderson and Cohen, 1939; Tanner, 1951), children for the present study were selected from the overall sample according to the following criteria: that they had been 'validly' tested at each of the ages in question, within 2 weeks of the due date at 6 months and 18 months, and within 3 months of the due date at 3 yr and 5 yr.

The testing history of all children in the sample at 6 months is summarized in Table 2. It can be seen that a test result was unobtainable for a few children at each age. Cases where the result was considered to be clearly invalid are combined in the table with those of merely doubtful validity. The 80 children who satisfied the requirements ('clean' cases) are the subjects of this study. It is interesting to note that there was no tendency greater than chance expectation for the same children to give results of doubtful validity on successive occasions (Table 3).

The parental characteristics of these 80 children at the time of birth are indicated in Table 4. In terms of fathers' occupational class the sample does not differ significantly in composition from that of the London Administrative County ($P > 0{\cdot}50$). Adequate information for comparison on other social indices is not available, and in any case it is not claimed that the sample is typical—in part because it depends on the co-operation of the parents. However, it is predominantly English in national origin, although in 9 cases a language other than English was commonly spoken in

TABLE 3. FREQUENCY OF UNOBTAINABLE AND DOUBTFULLY VALID SCORES, COMPARED WITH CHANCE EXPECTANCY, AMONG THOSE TESTED EACH TIME

No. of ages at which no valid result	No. of cases	No. expected*
0	77	74
1	50	53
2 or more	16	16
Total	143	143

$\chi^2 = 0{\cdot}2281 \quad df.2 \quad P > 0{\cdot}80$

*Expected numbers calculated from binomial expansion on the hypothesis that the tendency to give invalid responses on one occasion is independent of what happened on other occasions. Percentages of suspect results varied little from age to age (mean: 15·04 per cent).

the home, and, as is true of the population, the bulk of parents had an education below the Secondary Grammar level. The Graffar Scale provides an overall assessment of social class based on the sum of the social grades of father or mother (whichever is the highest) on each of the criteria: occupation, source of revenue, education, and quality of dwelling (Graffar, 1956). Two children had congenital abnormalities:

TABLE 4. BACKGROUND DATA CONCERNING "CLEAN" SAMPLE: NUMBERS IN EACH CATEGORY

Criterion	Social class grade				
	1	2	3	4	5
Occupation*: Father	3	13	45	15	4
(expected)†	16 (13·6)		45 (43·4)	19 (23·0)	
Mother	4	11	54	9	2
	University, etc.	Secondary grammar/ technical	Between 2 and 4	Elementary/ secondary modern	Below legal requirements
Education: Father	5	9	11	53	2
Mother	3	16	20	41	0
	Luxurious	Spacious, v. comfort.	Modest but satisfact.	Inter-mediate	Slum-like
Dwelling	0	5	24	45	6
Graffar score	1	11	28	40	0
	England	Brit. Isles, other		Other European	Other
National origin: Father	65	9		5	1
Mother	60	15		4	1

*According to occupational classification of Registar General (1950).

†Calculated from figures for London Administrative County, 1951 Census (Registrar General, 1953). For difference between observed and expected numbers

$\chi^2 = 1{\cdot}178 \quad df.2 \quad P > 0{\cdot}50$

in one case congenital talipes of a mild degree; in the other case multiple abnormalities, including craniosynostosis, bilateral proptosis, cleft palate, and syndactyly of hands and feet.

RESULTS

'Clean' sample compared with the rest

Differences between the means of 'clean' cases and the rest do not display any very consistent pattern (Table 5). 'Others' score higher ($P < 0{\cdot}10$) at 6 months, but thereafter slightly lower, though not significantly so. Equally, although at 18 months 'others' have a significantly higher variability than 'clean' cases ($P < 0{\cdot}05$), the trend is not consistent. The most that can be said is that the 'clean' sample scores slightly higher at the later ages, when something nearer to 'intelligence' is being measured, but there is little evidence to suggest that they are of appreciably higher ability than the rest.

TABLE 5. COMPARISON OF SCORES OF "CLEAN" SAMPLE AT EACH AGE, WITH ALL OTHERS VALIDLY TESTED AT THOSE AGES*

		"Clean"	Others	Difference		Significance (*P*)
Griffiths						
6 months	M	106·8	110·1	− 3·28	t: 1·773	< 0·10 > 0·05
	N	80	81			
	S.D.	11·61	11·85		F: 1·041	> 0·20
18 months	M	103·0	102·0	+ 1·04	t: 0·582	> 0·50
	N	80	75			
	S.D.	9·64	12·26		F: 1·617	< 0·05
Terman-Merrill						
3 yr	M	111·5	107·6	+ 3·88	t: 1·205	> 0·20
	N	80	74			
	S.D.	21·46	18·46		F: 1·352	> 0·10
5 yr	M	114·1	11·3	+ 2·79	t: 0·959	> 0·30
	N	80	68			
	S.D.	17·60	17·68		F: 1·0089	> 0·20

*t tests of differences in means. F tests of differences in variances.

The distributions of scores

At no age did the obtained distribution of scores differ significantly by χ^2 tests from the normal curve. (P values ranged from above 0·10 to above 0·50.) The means of both 'clean' and 'others' are higher at all ages than those reported by the authors of the tests for their standization samples (Table 5). Thus, Griffiths (1954) gives 97·2 as the mean corrected quotient at 6 months, and 98·6 to 98·7 between 15 months and 21 months. McNemar (1942), for Form L of the Stanford-Binet, gives a mean smoothed I.Q. of 102·2 at 3 yr and 100·4 at 5 yr for his sample as adjusted to the social class composition of the U.S. census. There are no satisfactory norms available at these ages for English children. In the light of these figures, one suspects that both of our sub-samples may be of higher ability than the general population, but this remains an open question. In evaluating the Terman–Merrill results, one can hardly generalize from one population to another, and in the case of the Griffiths Scale, although it was standardized on English children, the standardization sample was in no sense randomly or systematically sampled from any specific population. In supporting the representativeness of her sample, Griffiths, in the absence of post-war British Census figures at the time, had recourse to the occupational composition of the U.S. population, which seems of little relevance.

Be that as it may, if the present sample is above average ability, the selection must have occurred as a result of initial refusals to co-operate, and early selective losses from it. It is certainly plausible that cooperativeness on the part of mothers might be positively related to higher intelligence.

The variation with age in the mean quotients of the 'clean' sample (Table 5) amply demonstrate the danger of using raw I.Q.s and D.Q.s for predictive purposes.

Stability of scores

Correlations between scores at each of the ages are all significantly positive (Table 6), and of rather higher values than those reported by authors using other tests of infant development (Bayley, 1933, 1949; Nelson and Richards, 1939; L. D. Anderson, 1939; Ebert and Simmons, 1943; Cavanaugh *et al.*, 1957). This could be due to greater validity of the Griffiths test, to the heterogeneity of the sample, or to the omission of testings of doubtful validity. The level of intercorrelations suggests that the Griffiths and Terman are measuring along the same dimension, to some degree at least, but the coefficients are too small to justify making individual predictions from the earlier to the later ages. The high correlation between the 3 yr and 5 yr Stanford-Binet scores is very satisfactory, and compares very favourably with values to be expected at much later ages. It is free from any suspicion of halo effects, insofar as the children were tested by different investigators, at the two ages.

TABLE 6. CORRELATIONS BETWEEN SCORES AT THE FOUR AGES (N = 80)

	18 months	3 yr	5 yr
6 months	0·5628***	0·4027***	0·3186**
18 months		0·5419***	0·4029***
3 yr			0·7791***

Significant differences from 0: *0·05 level, **0·01 level, ***0·001 level

In general, the pattern of intercorrelations follows the usual trend of higher values between adjacent ages, and higher values of adjacent ages with increasing age of the child. The one exception to this is the slightly lower *r* for 18 months vs. 3 yr, than for 6 months vs. 18 months. This is most probably a reflection of the use of different tests at the two ages.

Tester differences

As will be recalled, Group A was tested by C.H. at 6 months and 18 months, and Group B by T.M. (Table 1), so that a check can be made concerning the comparability of their results. However, as the two sub-samples were allocated for convenience by birth-date and hospital of birth, which is not a strictly random procedure, more weight can be attached to similarity of trends than to differences, insofar as the latter include both sampling variations and any differences due to tester effects.

TABLE 7. COMPARISON OF MEANS AND STANDARD DEVIATIONS OF SUB-SAMPLES A (TESTED AT 6 MONTHS AND 18 MONTHS BY C.H.) AND B (TESTED AT 6 MONTHS AND 18 MONTHS BY T.M.)

		Griffiths				Terman-Merrill			
		6 months		18 months		3 yr		5 yr	
	N	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Group A	40	108·2	11·81	103·7	8·28	113·7	22·30	115·3	18·16
Group B	40	105·5	11·39	102·6	10·91	109·3	20·64	112·8	17·15
P of difference		>0·20	>0·25	>0·50	<0·05	>0·30	>0·25	>0·50	>0·25

There are no significant differences in mean scores (Table 7), although Group A has higher mean scores throughout. That this is more likely to be a result of sampling than of tester effects is suggested by the fact that the difference remains of similar order at 3 yr when the whole sample was tested by T.M., and at 5 yr, when it was tested by C.H. There is one significant difference in variance, at 18 months.

TABLE 8. CORRELATIONS BETWEEN SCORES AT DIFFERENT AGES, IN GROUPS A AND B

	Group A (N = 40)			Group B (N = 40)		
	18 months	3 yr	5 yr	18 months	3 yr	5 yr
6 months	0·587***	0·272	0·073	0·550***	0·534***	0·577***
18 months		0·480***	0·303		0·602***	0·487***
3 yr			0·819***			0·731***

Significant differences from 0: *0·05 level, **0·01 level, ***0·001 level.
Group A and B *r*'s for 6 months vs. 5 yr differ significantly ($P < 0{\cdot}02$).

The correlations between scores at different ages show rather bigger differences in the two groups (Table 8), though not consistently in one direction. However, one difference is significant, namely in the 6 months vs. 5 yr correlations ($P < 0{\cdot}02$). It is not easy to explain this, insofar as the correlations over short-term intervals, which may be taken as a measure of test reliability, are similar for the two groups. However, what can be concluded is that there may be differences in stability of scores over longish periods, in samples which differ little in mean scores and variances at each age, and in shorter term reliability. Further, an object lesson is provided in the dangers of generalizing too widely from results based on the inevitably small samples of most detailed longitudinal studies.

Owing to the small numbers, and lack of striking overall differences, the two subsamples were combined for the remaining breakdowns.

Sex and social class differences

Criteria of social class. As previously reported (Hindley, 1960), no significant social class differences in Griffiths scores were found at 6 months and 18 months. As a rough guide to the position on the Terman–Merrill at 3 yr and 5 yr, correlations were run between several criteria of social class as assessed at the time of the child's birth, and the test results (Table 9). At each age father's occupation alone yielded the highest correlation, which was of a rather higher order than the values of 0·20 to 0·30 (Fleming, 1943) and 'about 0·35' (Vernon, 1960), which are typically obtained among school children. The combined Graffar classification gave the next highest values. Scores at both ages were significantly correlated with mother's education, but only at 5 yr with that of the father. The generally higher correlations at 5 yr, with each of the parental status variables, are consistent with the findings of Bayley 1954) and Honzik (1957, 1963). Because of its high level of discrimination, father's occupation was used as the criterion of social class in further comparisons.

Combined analysis. Because of a suspicion that sex and social class differences in scores might be associated (Hindley, 1962a), not only were mean scores calculated by sex and social class at each age, but also by social class for each sex separately (Table 10), in terms of standard deviation units. Analyses of variance were performed separately at each age to provide estimates of sex and social class effects, and any interaction between them (Table 11).

TABLE 9. CORRELATIONS (PRODUCT-MOMENT) OF TERMAN-MERRILL SCORES WITH DIFFERENT CRITERIA OF SOCIAL CLASS, AT 3 YR AND 5 YR (SEXES COMBINED)

	N	Father's occupation	Mother's occupation	Father's education	Mother's education	Quality of dwelling	Graffar classification
3 yr	80	0·41***	0·20	0·18	0·26*	0·13	0·26*
5 yr	80	0·50***	0·29**	0·40***	0·43***	0·15	0·45***

Significant differences from 0: *0·05 level, **0·01 level, ***0·001 level.

Social class differences. Consistent with the previous findings (Hindley, 1960), no significant social class differences were to be found in Griffiths scores at 6 months and 18 months, but highly significant differences ($P < 0\cdot001$) were to be found in Terman–Merrill scores at 3 yr and 5 yr (Table 11). At these ages, children of social class 1/2 obtained mean scores of roughly 0·62 σ and 0·86 σ above the overall means (Table 10); those of social class 3 score near to the overall means; and those of social class 4/5 score 0·61 σ and 0·66 σ below the overall means.

If part of the overall consistency in scores at different ages (Table 6) were due to consistent social class differences, a reduction in the magnitude of correlations would be expected if this factor were eliminated by examining within class correlations (Table 12). No such reduction is to be seen in comparison with Table 6. This is quite understandable in view of the lack of significant social class differences at

TABLE 10. MEAN SCORES AT EACH AGE BY SEX AND SOCIAL CLASS (FATHER'S OCCUPATION), IN STANDARD DEVIATION UNITS*

Social class		1 and 2		3		4 and 5		Total	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Boys									
Griffiths	6 months	− 0·28	0·77	− 0·03	1·12	− 0·27	0·94	− 0·13	1·03
	18 months	− 0·63	1·14	− 0·17	0·83	+ 0·21	1·27	− 0·17	1·03
Terman	3 yr	+ 0·17	1·21	− 0·08	0·85	− 0·35	0·92	− 0·10	0·88
	5 yr	+ 0·64	0·98	− 0·04	0·97	− 0·40	0·69	0·00	0·92
		(N = 8)		(N = 25)		(N = 10)		(N = 43)	
Girls									
Griffiths	6 months	+ 0·16	0·47	+ 0·37	1·00	− 0·35	1·13	+ 0·15	0·95
	18 months	+ 0·50	0·72	+ 0·34	0·85	− 0·39	1·21	+ 0·19	0·92
Terman	3 yr	+ 1·06	0·55	+ 0·19	0·83	− 0·90	1·11	+ 0·11	1·15
	5 yr	+ 1·07	0·56	0·00	0·76	− 0·96	1·13	0·00	1·13
		(N = 8)		(N = 20)		(N = 9)		(N = 37)	
Combined									
Griffiths	6 months	− 0·06	0·64	+ 0·15	1·07	− 0·31	1·04	0·00	1·00
	18 months	− 0·07	0·95	+ 0·05	0·84	− 0·07	1·24	0·00	1·00
Terman	3 yr	+ 0·62	0·94	+ 0·04	0·84	− 0·61	1·02	0·00	1·00
	5 yr	+ 0·86	0·80	− 0·02	0·88	− 0·66	0·92	0·00	1·00
		(N = 16)		(N = 45)		(N = 19)		(N = 80)	

*Raw D.Q.s and I.Q.s were expressed as deviations from the sample mean, in x/σ units, separately at each age. For the whole sample at each age, mean = 0, σ = 1. At no age did variances of the six sub-groups differ significantly.

6 months and 18 months. It is also evident from Table 12 that the predictive levels are similar in the different social class groups, though the small numbers necessitate caution.

Sex differences. There were no significant overall sex differences in scores, but of considerable interest is the significant interaction ($P < 0{\cdot}05$) between sex and social class effects at the age of 18 months (Table 11). This can be clearly seen in Table 10, where the girls show the same trend as at later ages, namely a positive relation between social class and scores, whereas in the case of the boys the relationship is inverse, with the highest social class boys having the lowest mean scores and vice versa. The extent of the interaction between the two influences is to be seen in the differences between the means of boys and girls of the same social class group: class 1 and 2, 1·13 σ in favour of the girls; class 3, 0·51 σ in favour of the girls; and in class 4 and 5, 0·60 σ in favour of the boys.

At 3 yr, interaction is no longer significant, though it borders on it ($P < 0{\cdot}10 > 0{\cdot}05$). The boys have assumed the same social class order in mean scores that will apply at 5 yr, and which was already discernible in girls at 18 months, but the discrepancies between boys and girls of the same social class group remain in the same directions: class 1 and 2, 0·89 σ in favour of the girls; class 3, 0·27 σ in favour of the girls; and class 4 and 5, 0·55 σ in favour of the boys.

TABLE 11. ANALYSES OF VARIANCE * BY SEX AND SOCIAL CLASS (FATHER'S OCCUPATION) AT EACH AGE

Source of variation	*df.*	6 months		18 months		3 yr		5 yr	
		Mean square	*P*	Mean square	*P*	Mean square	*P*	Mean square	*P*
Sex	1	1·7353	> 0·10	2·6809	> 0·10	0·8360	> 0·20	0·0084	> 0·20
Social class	2	1·6039	> 0·20	0·2487	> 0·20	6·6009	< 0·001	10·2400	< 0·001
Interaction	2	0·4398	> 0·20	3·4765	< 0·05	2·2081	< 0·10 > 0·05	1·1022	> 0·20
Individuals	74	0·9932		0·9331		0·8167		0·7656	
Total	79								

*The mean squares for sex, social class, and interaction are unbiased estimates, which compensate for disproportionate sub-class numbers (Snedecor, 1953, 1956).

TABLE 12. CORRELATIONS (PRODUCT-MOMENT) BETWEEN SCORES AT DIFFERENT AGES, WITHIN SOCIAL CLASS GROUPS

Social class	1 and 2			3			4 and 5		
		(N = 16)			(N = 45)			(N = 19)	
	18 months	3 yr	5 yr	18 months	3 yr	5 yr	18 months	3 yr	5 yr
6 months	0·583*	0·451	0·539*	0·639***	0·369*	0·279	0·490*	0·494*	0·377
18 months		0·698**	0·663**		0·537***	0·384**		0·594**	0·497*
3 yr			0·745***			0·700***			0·792***

Significant differences from 0: *0·05 level, **0·01 level, ***0·001 level.

In line with these results, when analyses of variance were done separately for boys and girls at each age, the girls showed a significant social class difference by 3 yr ($P < 0{\cdot}001$), whereas among boys such differences had not reached a high magnitude even by 5 yr ($P < 0{\cdot}10$) (see Hindley, 1962a).

These findings are consistent with those of Kagan and Moss (1959) and Honzik (1963), who reported an association between the child's I.Q. and status characteristics of the parents, in their cases parental I.Q. and education, at an earlier age among girls than boys. Bayley (1954) did not find such differences, but her numbers were rather smaller ($N = 56$), and the children came from a more restricted, relatively favoured, range of social backgrounds.

Insofar as girls reach a pattern of scores consistent with their social background at an earlier age than boys, one might expect them to show higher correlations between their scores at different ages. In fact, there is no more than a suspicion of such a tendency (Table 13). Although five out of six r's are higher for girls, the differences are small.

TABLE 13. CORRELATIONS (PRODUCT-MOMENT) BETWEEN SCORES AT DIFFERENT AGES, BY SEX

	Boys (N = 43)			Girls (N = 37)		
	18 months	3 yr	5 yr	18 months	3 yr	5 yr
6 months	0·437**	0·420**	0·240	0·699***	0·370*	0·413**
18 months		0·513***	0·348*		0·564***	0·481**
3 yr			0·743***			0·821***

Significant differences from 0: *0·05 level, **0·01 level, ***0·001 level.
Difference between r's of boys and girls for 6 months vs. 18 months: $P < 0{\cdot}10$.

DISCUSSION

Generalization

The foregoing results are based on a sample of limited size, which was by no means randomly selected, although its occupational composition is similar to that of the London Administrative County. Further, mean D.Q.s and I.Q.s were probably above the population average, though we cannot be sure on this point. Conclusions must therefore be drawn with some caution. The dangers of generalizing widely from small samples are well demonstrated by the rather different levels of long-term prediction, in sub-samples A and B, despite similar short-term reliability and similar levels of mean scores.

However, to the extent that our findings are similar to those of American and other studies, one can claim with some justification that they probably represent general tendencies.

Predictive efficiency

As with other infancy tests, the level of correlations between infancy scores and later Stanford–Binet I.Q.s are too small to recommend the Griffiths Scale for practical use in prediction, among normal children. The case may be somewhat better among the abnormal (Illingworth, 1961). However, the fact that all correlations are significantly positive, unlike several of those quoted by Jones (1954), suggests that the Griffiths Scale is measuring something related to later I.Q. Assuming a short-term re-test reliability of 0·8 on the Griffiths, and 0·9 on the Stanford–Binet, correction for attenuation (Guilford, 1936) would yield correlations for 6 months vs. 5 yr = 0·38 and for 18 months vs. 5 yr = 0·47.

Many authors have addressed themselves to the question as to why the level of correlations should be relatively low. On the available evidence, Hindley (1960) has previously argued that poor re-test reliability cannot be a major factor. Bayley (1933, 1949), J. E. Anderson (1939), and others, have stressed differences in the abilities tested at the two ages as a major factor. This contention receives support from the work of Richards and Nelson (1939) and Hofstaetter (1954). Yet this may not be the complete answer. It is worth noting that correlations of 5 yr height with height at 6 months are about 0·58, and only rise to a respectable level of the order of 0·75 at 12 months (Tanner *et al.*, 1956). Here the problems of unreliability of measurement are much less, and although height may justifiably be regarded as a composite of several parameters, it yields correlations of at least a similar order to those which apply in the case of less complex bodily dimensions. It therefore seems reasonable to conclude that physical growth has not assumed a stable pattern much before 12 months, and it need occasion no surprise that the cruder measures of behavioural science yield even lower measures of stability, especially when account is taken of the greater sensitivity of psychological development to environmental factors. Bloom (1964) makes the additional point that 50 per cent of development of adult height has been attained by 2½ years, compared with 4 years for general intelligence, as estimated by Thurstone's (1928) absolute scaling technique.

The generally higher level of correlations in this study than those reviewed by Jones (1954) could be the result of any one of three factors. Certainly the more heterogeneous nature of the sample than of most American studies would lead one to expect higher values. Again, the exclusion of cases where the test results appeared invalid on account of poor co-operation, etc., would tend in the same direction. However, this would not account for the higher levels than those of Bayley (1933), insofar as she made attempts to minimize poor reliability by averaging results of adjacent testings. Finally, it may be that the Griffiths Scale is a better instrument than other baby-tests which have been commonly used.

Independence of tendency to give responses of doubtful validity

On general grounds, it might be anticipated that some children would tend to give doubtfully valid responses on repeated occasions, as a relatively consistent expression of such personality characteristics as shyness, lack of ease with strangers, etc. On the contrary, it is interesting to find the numbers responding in this way on more than one occasion to be very close to what would be expected on a purely chance basis. This may be taken as a further small piece of evidence regarding the changeability of behavioural tendencies in infancy and early childhood.

Sex and social class differences

In line with previous findings there is little overall difference in the scores of boys and girls. Of more importance are the marked social class differences by the age of 3 yr, and the earlier association between scores and social class in the case of girls than boys. The general social class difference is consistent with the findings of others, including Bayley (1954), Honzik (1957), Moss and Kagan (1958), Kagan and Moss (1959) and Klackenberg-Larsson (1964). The weight of evidence is therefore heavy, that the sort of social class differences in ability among schoolchildren which Douglas (1964) has recently been stressing, emerge quite strongly in the pre-school period. Thus, it is to this period that we must look if we are to elucidate further the causal factors involved, as Bloom (1964) has insisted.

It should be pointed out that the present results are equally consistent with a theory based on the cumulative influence of environmental effects, or one based on the gradual emergence during development of inherited differences of ability. Evidence supporting the former is to be found from such varied sources as studies of deprivation (Bowlby, 1952), the twin study of Newman *et al.* (1937), and the higher I.Q.s of fostered children than those of their true parents (Skodak and Skeels, 1949). Evidence for the latter comes from many sources, including again the study of twins (Newman *et al.*, 1937), and the findings of significant relationships of children's scores to status of the true parents, in instances where environmental differences were largely ruled out (Lawrence, 1931; Skodak and Skeels, 1949; Honzik, 1957). On the available evidence (see Hunt, 1961; Bloom, 1964) one must conclude that both kinds of influence are probably involved in the present results.

SUMMARY

A longitudinal sample of London children of widely differing social class backgrounds was tested with the Griffiths Scale at 6 months and 18 months, and the Stanford-Binet at 3 yr and 5 yr. Cases omitted on account of invalid testings did not differ significantly in scores at other ages. On the remaining 80 cases, intercorrelations of scores between ages ranged from 0·32 (6 months vs. 5 yr) to 0·78 (3 yr vs. 5 yr), and all were significant. No significant sex differences in mean scores were found, but highly significant differences by fathers' occupations appeared by 3 yr. Here there was a sex difference, in that girls showed a significant association at an earlier age than boys. Reasons for poor predictiveness from infancy, and for the social class differences, are discussed.

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THE PREVALENCE AND PATTERNS OF PSYCHOLOGICAL DISTURBANCE IN CHILDREN OF PRIMARY AGE

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VERY little evidence is available as to the prevalence of psychological disturbance in the child population of Britain. Estimates based upon children in psychiatric treatment are clearly quite unreliable in this field, as recognition of problems by parent and school is uncertain and referral rates are affected by public and medical attitudes and by the facilities available. The most valuable recent figures are those given by Douglas and Mulligan (1961) and by Brandon (1960). The former report upon a representative national sample of children, assessing disturbance from material gathered by health visitors and school teachers; their findings emphasize how small a proportion of children showing evidence of psychiatric disturbance are under psychiatric care. Brandon, in a study of a sample of families in the Newcastle 1000 Families Survey, found evidence of behaviour disturbance in one child in five by the age of 11.

The aim of the present paper is to describe the prevalence and patterns of emotional disorder in a sample of children unselected on psychiatric grounds. The sample we are reporting is smaller and less representative than those studied by the above authors, but unlike these studies, ours has been designed from the outset to collect social and psychiatric data. It was our aim to measure prevalence rates in this sample by a method which was independent of consultation habits, yet which employed clinically familiar concepts and terms. In this way the relationship between "illness" and consultation could be examined, and the patterns of disturbance found in this psychiatrically unselected population could be compared with the patterns encountered in children under psychiatric care.

SUBJECTS

The children, 79 boys and 80 girls, were selected by virtue of their age (born 1949 to 1955) and by the fact that they, and at least one of their parents, were registered on the National Health Service list of one of the authors (A.R.). All families meeting these criteria were included, except those known to be in Social Class 1 and 2 and nine families where adequate co-operation was not obtained. Families with older children were visited first, and the survey took three years; the children's ages at the time of interview ranged from 5 to 12 years, but most were over 6 years (Table 1). The background, social class (predominantly 3 and 4), income level, neuroticism, and marital patterns of the parents of these children have been

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TABLE 1. AGE OF CHILDREN AT ASSESSMENT

Age (years)	Boys	Girls	Totals
5–7	29	30	59
8–9	33	23	56
10 or more	17	27	44
Totals	79	80	159

described in earlier papers (Ryle and Hamilton, 1962; Hamilton *et al.*, 1962; Pond *et al.*, 1963). Caution is essential in generalizing from any circumscribed sample but there seems no reason to believe that this sample was weighted with psychiatrically disturbed families. In theory one might predict that a psychiatrically orientated general practitioner might attract or retain psychiatrically ill patients; in practice, however, the available objective criteria do not suggest that this has influenced the composition of this sample. The parents' scores on the Cornell Medical Index (Brodman *et al.*, 1949, 1951, 1952, 1954; Culpan *et al.*, 1960) were similar to those found in a sample of several general practices by Cooper (1963), and scores on the short Maudsley Personality Inventory (Eysenck, 1959) of a random sample of women in the practice did not differ from those found in a number of other practices (Coppen and Kessel, 1963).

The survey was carried out by a whole-time psychiatric social worker (M.H.) working in co-operation with the general practitioner (A.R.) under the supervision of a psychiatrist (D.A.P.).

METHOD

(*a*) *Sources of data*

The information about the families was derived from A.R.'s general practice records, from interviewing of the parents by M.H. (both parents being interviewed together in the great majority of cases) and from standard teachers' reports upon the children. General practice records for the child's lifetime were summarized in respect of consultations for psychological or psychosomatic illness. This, and other information from the practice records, was not available to M.H. until after she had recorded her interviews.

The research interviews were carried out on the basis of a detailed agenda, to ensure that information on all items was recorded for all families, but the actual interview technique was a loosely-structured one. Parental cooperation was good, and M.H. felt that the accuracy of information given at interview was unsatisfactory in only eight cases. The internal consistency of the interview material, and agreement between interview data and general practice records, was usually good. Material recorded from these interviews included details of each child's personal history and the parents' reports of the child's behaviour, personality, psychological state and recurrent physical symptoms (e.g. headaches, abdominal pain, asthma) suggesting probable psychosomatic disturbance. It was noted whether the parents considered the child to have an emotional or behavioural problem. This judgement did not imply that the problem was seen as an indication for seeking medical advice.

School reports on the children were obtained on the form designed by Douglas and Mulligan (1961) for their national survey. It consists of a number of items dealing with school performance, personality and symptomatology, as noted by the teacher. The form has been validated (Mulligan *et al.*, 1963) in a study in which 13-year-old children in a national sample were compared with a group of child guidance attenders of similar age. The form was found to distinguish the child guidance clinic children from the normal sample, and also to give a classification into acting-out and inhibited children in agreement with the clinic classification of the child guidance sample. It is likely that the teachers completing the forms on the child guidance sample were aware of the children's attendance. It should be noted that the children in our population were much younger than those included in the validation study, and that Mulligan (1963) did not find the form to be very satisfactory with younger children.

(*b*) *Rating methods*

The parents' reports of the psychological state of the children over the year prior to the interview were recorded by M.H. and rated by her against scales (summarized in the appendix) slightly modified from those described by Macfarlane *et al.* (1954) (referred to hereafter as Macfarlane ratings). Twenty-two five-point scales were used, each of which provided detailed examples of the type, severity and frequency of the characteristic being rated. An independent rating of M.H.'s record was carried out on every tenth case by A.R.; rater disagreements never exceeded three per case and were never of more than one point on the scale.

Having collected the data, criteria for the presence, severity and type of disturbance were defined. "Problem" ratings on each Macfarlane scale were allotted from 1 to 3 points according to a clinical estimate of severity (see appendix). The choice of problem items was usually, but not always, in agreement with that of Macfarlane *et al.* As the Macfarlane scales do not record psychosomatic symptoms, no rating scale was available; an arbitrary score of 2 was allotted where these were reported. The combined Macfarlane and psychosomatic scores were taken as a measure of severity of disturbance. Such a procedure is clearly crude, but justification for it may be found in the analogous use of the Cornell Medical Index score as a measure of neuroticism in adults (this has been reviewed in our previous papers: Ryle and Hamilton, 1962; Hamilton *et al.*, 1962); in Brandon's (1960) finding that nearly all "abnormal" symptoms (rated on modified Macfarlane scales) were significantly more common in children independently rated as maladjusted, than in controls; and in the observation by Glidewell *et al.* (1957) that the number of symptoms reported by mothers was reliably related to the adjustment ratings made independently by psychiatric social workers and teachers.

In addition to deriving a total symptom score from the Macfarlane ratings, problem items were classified on clinical grounds into six groups, yielding six subscores, namely: habit and tension symptoms (the psychosomatic score was included in this); acting-out behaviour; inhibited behaviour; anti-social behaviour; compliant social behaviour; and unclassified (see appendix).

There are obviously severe limitations to the quality of the data available about these children. Interview data, even when collected by a psychiatrically sophisticated interviewer, is bound to contain some distortion, although the presence of both parents at most interviews was some safeguard against this. The school reports were compiled by teachers scattered among 38 different schools (three schools refused cooperation). In the absence of intelligence measures, educational retardation was not taken into account. Finally, no systematic direct assessment or observation of the children was attempted.

RESULTS

1. *Distributions on the Macfarlane sub-scales*

The tables in the appendix record the percentage of boys and girls scoring at each level on each scale. It will be noted that differences between the sexes are minor for most items, but significant sex differences were present for appetite ($p < 0{\cdot}0003$, 4 d.f.), destructiveness ($p < 0{\cdot}03$, 3 d.f.), timidity ($p < 0{\cdot}01$, 4 d.f.) and shyness ($p < 0{\cdot}02$, 3 d.f.) (χ^2 test of homogeneity).

2. *Distribution of total scores* (*Table* 2)

χ^2 tests revealed no significant association of total scores with either age or sex. (For sex differences $p < 0{\cdot}15$, d.f. $= 1$; for age differences, similarly tested, $p < 0{\cdot}3$ for boys and $< 0{\cdot}2$ for girls.) The absence of any age association may in part reflect the construction of the Macfarlane scales, some of which describe problems or behaviour in terms such as "more or less than is appropriate to his or her age".

TABLE 2. DISTRIBUTION OF TOTAL SCORES

Sex	N	Scores 9 or less	10–14	15–19	20–24	25–29	30–34	35 or more
M	79	15	14	15	21	9	3	2
F	80	16	25	15	12	4	3	5

3. *Distribution of sub-group scores*

Neither age nor sex was found to bear any significant relationship to scores on any of the five sub-groups (this was not assessed for the unclassified group). In the case of habit and tension scores (Table 3), the absence of a sex difference is obvious. In the case of the other sub-group scores probability values are given in Tables 4 and 5.

TABLE 3. DISTRIBUTION OF HABIT AND TENSION SYMPTOMS SCORES

Sex	N	Scores 0–1	2–3	4–5	6–7	8–9	10–11	12 or more
M	79	8	15	21	17	8	9	1
F	80	6	19	21	17	9	5	3

TABLE 4. DISTRIBUTION OF ACTING-OUT AND INHIBITED SCORES

Sub-scale	Sex	N	0–1	2–3	4–5	Scores 6–7	8–9	10–11	12 or more
Acting-out	M	79	11	15	18	11	7	8	9
	F	80	22	19	14	6	6	6	7
Inhibited	M	79	29	20	14	8	4	2	2
	F	80	34	23	3	9	5	2	4

Sex differences: acting out, $P = 0{\cdot}34$, *df*.6; inhibited, $P = 0{\cdot}15$, $df = 5$

TABLE 5. DISTRIBUTION OF ANTI-SOCIAL AND COMPLIANT SOCIAL SCORES

Sub-scale	Sex	N	0	1	2	Scores 3	4	5	6
Anti-social	M	79	50	12	7	1	5	3	1
	F	80	58	12	5	1	2	1	1
Compliant social	M	79	44	22	4	7	0	2	0
	F	80	32	28	7	11	0	2	0

Sex differences: anti-social, $P = 0{\cdot}6$, $df = 4$; compliant social, $P = 0{\cdot}4$, $df = 4$.

4. *The relationship between sub-group scores*

The relationships among the five sub-group scores were determined by inter-correlating them (Table 6). The following correlations were significant: habit and tension symptoms with acting-out and anti-social scores; acting-out with anti-social scores; inhibited with compliant social scores. There was a significant negative correlation between anti-social and compliant social scores.

TABLE 6. INTER-CORRELATIONS OF SCORES IN DIFFERENT SYMPTOM GROUPS IN 159 CHILDREN

Score	Correlation coefficient Acting-out	Inhibited	Anti-social	Compliant-social	All children Mean score	Variance
Habit and tension symptoms	0·261**	0·097	0·156*	0·045	5·28	9·25
Acting-out	—	– 0·120	0·406**	– 0·049	5·28	17·63
Inhibited	—	—	– 0·143	0·173*	3·21	13·49
Anti-social	—	—	—	– 0·330**	0·71	1·84
Compliant-social	—	—	—	—	0·92	1·40

*Significant at 5 per cent level ($r \geqslant 0{\cdot}156$).
**Significant at 1 per cent level ($r \geqslant 0{\cdot}200$).

5. *The relationship between total scores and the recognition of disturbance by parents and teachers*

Parental recognition was assessed on the basis of a routine enquiry during the survey interview. Any parent who indicated awareness of an emotional or behavioural problem, either in response to direct questioning or in the course of describing the child, was recorded as recognizing disturbance, irrespective of whether any action was contemplated. Teachers' recognition was based upon the teachers' replies to question 23 on the form, which read as follows: "Taking the child's behaviour and relationships with other children as a whole, would you say he/she is (1) Sensitive or highly strung; (2) Shy or withdrawn; (3) Aggressive". Each item could be completed as "not at all", "somewhat", or "very". Mulligan (1963) had found that this question distinguished between the child guidance children and the control sample. Figure 1 demonstrates the association between rising scores and parental recognition.

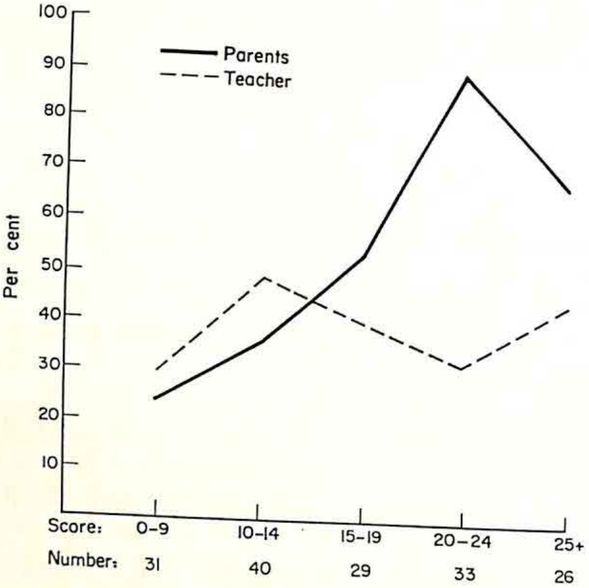

FIG. 1. The percentage of the sample recognized as disturbed by parents and teachers (see text) at different total score levels.

A score of 20 or more was associated with parental recognition at the following levels, Boys: $\chi^2 = 3{\cdot}6$, $p = < 0{\cdot}06$, d.f. $= 1$; Girls: $\chi^2 = 19{\cdot}6$, $p = < 0{\cdot}001$, d.f. $= 1$. There was no relationship between the score level and teachers' recognition, defined as at least one "very" or two "somewhat" replies to question 23. The acting-out score from the Macfarlane rating was similarly unrelated to teachers' recognition. Educational achievement in children aged eight or more, assessed by stream and by class position, was also unrelated to the Macfarlane score.

6. *The relationship of total scores to medical treatment*

Three factors were investigated in relation to the total score level: a record of any consultation during the child's life at which a psychiatric or psychosomatic diagnosis had been made; a record of further action taken by A.R. (by which is meant a special appointment outside surgery, intervention with the school, or referral); and, separately, referral to a child guidance clinic. The latter figure includes referrals after the survey was completed until mid-1963. None of these referrals was directly prompted by the survey interview, although the referral rate was increased after the survey and the information gathered during the survey may have influenced selection for referral.

It is seen (Fig. 2) that all three types of treatment were recorded more frequently in the higher-scoring children; it is also noteworthy that further action had been taken on every child scoring 25 or more who consulted. A score of 20+ was associated with a G.P. diagnosis of psychological disorder ($\chi^2 = 5{\cdot}0$, $p = < 0{\cdot}025$, d.f. = 1) and with further action ($\chi^2 = 3{\cdot}6$, $p = < 0{\cdot}06$, d.f. = 1).

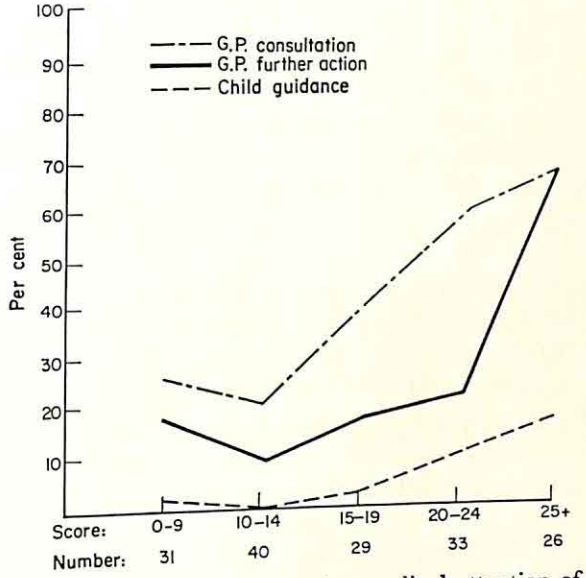

FIG. 2. The percentage of the sample receiving medical attention of three types (see text) at different score levels.

DISCUSSION

For the reasons given in the introduction and in our previous papers, referred to above, it seems likely that these families are a fairly representative sample of the skilled and semi-skilled working-class population in London. Although the method of recording and rating symptoms and behavioural disorders in the children was far from perfect, the work of Brandon (1960) and Glidewell *et al.* (1957) suggests that it is reasonably valid. The more adequate type of diagnostic formulation employed in clinical work tends to include inferential statements associating the child's state with his family and other background factors. One object of this study was to investigate these associations.

Our results confirm what has been increasingly evident in recent years, from such work as Bremer's (1951) study of a Norwegian town and Lapouse and Monk's (1959) study of an American town. A large proportion of children exhibit symptoms or behaviour of a type which would be judged "pathological" in a clinic setting. The absence of significant age or sex trends in our population on most of the Macfarlane scales was probably a reflection of the particular age group studied, and of the nature of the Macfarlane scales; the absence of any significant tendency for boys to score higher than girls contrasts with the male preponderance in child guidance clinic attenders.

The neo-natal and infant studies of Chess *et al.* (1960) suggest that part of the tendency of children to show either acting out, antisocial behaviour or inhibited, compliant behaviour may reflect congenital patterns. Possibly the level of activity, which Fries and Woolf (1953) suggest is an important variable present from birth, is particularly relevant. Baldwin (1948) reported that highly active pre-school children later showed non-conformity and rebelliousness. Collins *et al.* (1962) in a factor-analytic study of the records of children aged eight to ten who had attended the Maudsley children's department with symptoms not due to epilepsy, mental deficiency or psychosis, isolated factors of rebelliousness and anxiety in both boys and girls, which may well be comparable. Follow-up studies from child guidance populations (Morris *et al.*, 1956; Michael *et al.*, 1957; O'Neil and Robins, 1958) have shown significant differences in outcome as regards mental health and criminality between the inhibited and acting-out groups of child guidance attenders, the latter faring much worse. How far these findings can be applied to the relatively mild cases defined in our study is of course uncertain.

The absence of any correlation between the Macfarlane rating scores and the teacher's recognition of the child as disturbed is probably attributable to two factors: one the uncertain validity of the teachers' form for this age group, the other the fact that children may behave very differently at home and at school. It is also possible that teachers are relatively unobservant of excessively compliant or inhibited behaviour. Parental recognition is clearly associated with the Macfarlane rating score, and so are the rates of medical response. The recorded rate of general practice consultation for psychological or psychosomatic disorders is likely to be higher than average in this practice, due to A.R.'s interest; and the child guidance referral rate is about 10 times the rate recorded in 11-year-olds in the national sample by Douglas and Mulligan (1961).

From the point of view of planning psychiatric services, it is clearly important to know whether, amongst those children scoring 20 or more on the Macfarlane rating, the nine out of ten who did not reach child guidance, and the three out of ten who did not consult in general practice, were less in need of treatment than those referred or consulting. No independent criteria of illness are available with which to answer this question, although the survey records did not suggest any close association of severity with consultation and referral. In a future paper, the relationship of a number of family characteristics to the Macfarlane scores of the children, and to their consultation history, will be reported.

SUMMARY

A study of a sample of children aged 5 to 12 in a general practice population is reported. The symptoms and behaviour of these children, as described by their parents, were rated against scales, and the frequency distribution of the sample in relation to these scales was recorded. Few age or sex differences were observed.

Scores for psychological disturbance were derived from these scales and related to parents' and teachers' recognition of disturbance, and to medical treatment received.

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APPENDIX

The tables provide abbreviated versions of the Macfarlane scales, arranged in the sub-groups employed in our study. The number of the Macfarlane equivalent of each scale is indicated, and the score allotted and percentage distribution of the sample on each scale item is provided. This distribution, it will be recalled, is based upon 79 boys and 80 girls.

Table A1. Habit and tension symptoms scales

Scale title (Macfarlane equivalent in brackets)	Abbreviated description	Score	Percentage distribution Boys	Girls
Restless sleep (A.1 and 2 combined)	1. 2 hr or more delay and/or walks, talks, cries most nights	3	30	23
	2. Often delayed; talks, walks or very restless weekly or more	2	14	10
	3. Disturbed weekly to monthly	1	6	16
	4. Rarely delayed or disturbed	0	16	16
	5. Usually sound quiet sleeper	0	34	35
Nocturnal enuresis (B.4)	1. Wet 2 or more times weekly	3	4	6
	2. 2–7 times monthly	2	0	3
	3. Monthly	1	5	3
	4. Once in past six months	0	10	7
	5. Not in past six months	0	81	81
Appetite (C.7)	1. Markedly poor	3	4	6
	2. Below average	1	18	40
	3. Average	0	29	29
	4. Hearty appetite	0	32	22
	5. Voracious	2	17	3
Motor habits (E.15, 18, 19 combined)	1. Tics, nail-biting, thumb-sucking. Compulsive, severe, persistent	3	4	6
	2. Obvious and usually present	2	19	18
	3. Mild and/or only under tension	1	24	26
	4. Mild, infrequent, irregular habits	0	18	18
	5. Absent	0	35	32
Activity level (at home) (E.20)	1. Restless always; very over-active	3	1	3
	2. More restless than average	2	33	23
	3. Normal activity	0	56	64
	4. Under-active, prefers sedentary occupations	0	9	10
	5. Inert, inactive	0	1	0

TABLE A2. ACTING-OUT (AO) AND INHIBITED (I) SCALES

Scale title (Macfarlane equivalent in brackets)	Abbreviated description	Score	Sub-group	Percentage distribution	
				Boys	Girls
Destructiveness (F.24 modified)	1. Compulsive	3	AO	0	0
	2. Above average. Very clumsy	2	AO	19	10
	3. Occasionally careless or destructive through curiosity	0	—	68	55
	4. Very careful but able to enjoy playing nonetheless	0	—	12	27
	5. Excessive care inhibits enjoyment	3	I	1	8
Selfishness (F.26 modified)	1. Strongly resents sharing	3	AO	1	1
	2. Shares under pressure; thoughtless	2	AO	24	13
	3. Normally will share happily except favourite toys	0	—	34	39
	4. Enjoys sharing and giving presents	0	—	27	37
	5. Over-generous; inhibited by fear of troubling others	3	I	14	10
Quarrelsome (F.27)	1. Constant quarrelling	3	AO	1	0
	2. Above average quarrelling	2	AO	4	1
	3. Quarrels with provocation, may occasionally start	0	—	52	35
	4. Below average quarrelling	0	—	29	43
	5. Compulsive placation	3	I	14	21
Demanding (G.29 modified)	1. Constant demand for attention	3	AO	5	5
	2. Above average demand for attention	2	AO	38	46
	3. Likes attention but functions without it	0	—	35	34
	4. Usually quite content without attention	0	—	18	11
	5. Unusually self-contained and self-reliant	2	I	4	4
Timidity (G.36)	1. Fearful, apprehensive	3	I	3	5
	2. Over-cautious	1	I	11	20
	3. Normally cautious	0	—	27	35
	4. Exploratory, will take chances	0	—	46	35
	5. Foolhardy	2	AO	13	5
Shyness (G.36b modified)	1. Exceptionally shy	3	I	0	0
	2. Often shy, embarrassed in company	2	I	37	20
	3. Shy with certain people only	0	—	38	51
	4. At ease in most social situations	0	—	8	19
	5. Facile contacts	2	AO	17	10
Defiance (G.40)	1. Extreme, pervasive negativism	3	AO	0	1
	2. Above average resistiveness	2	AO	27	21
	3. Occasionally resistive, especially of unreasonable demands	0	—	66	58
	4. Accepts rules and routines automatically	0	—	6	17
	5. Docile, over-suggestible	3	I	1	3

TABLE A2 (*continued*)

Scale title (Macfarlane equivalent in brackets)	Abbreviated description	Score	Sub-group	Percentage distribution	
				Boys	Girls
	Scored on severity × frequency				
Temper tantrums (G.42)	1. Severe, over 3 weekly	3	AO	17	6
	2. Occasionally severe; frequent screaming	2	AO	16	14
	3. Less severe than in 2	1	AO	35	34
	4. Minor fretting when irritated	0	—	16	22
	5. Over placid, almost no anger reaction	3	I	16	24
Jealousy (G.43)	1. Extreme. Overt	3	AO	4	3
	2. Less extreme; constant	2	AO	18	24
	3. Occasional; mild	1	AO	25	29
	4. No real jealousy; occasionally needs reassurance	0	—	50	33
	5. No jealousy	0	—	3	11
Competitiveness (G.44 modified)	1. Hectic. Extreme	3	AO	0	1
	2. Hates losing, excessively cocky if wins	2	AO	1	0
	3. Stimulated by competition, can accept defeat	0	—	28	23
	4. Not competitive	0	—	70	70
	5. Fails compulsively or through disorganization	3	I	1	6
Reserve (G.45)	1. Extreme reserve	3	I	4	0
	2. Above average reserve	2	I	33	25
	3. Normally expressive	0	—	39	50
	4. Spontaneous, open, volatile	0	—	23	20
	5. Very uninhibited; exhibitionistic	2	AO	1	5

TABLE A3. ANTI-SOCIAL (AS) AND COMPLAINT SOCIAL (CS) SCALES

Scale title (Macfarlane equivalent in brackets)	Abbreviated description	Score	Sub-group	Percentage distribution	
				Boys	Girls
Lying (F.22)	1. Habitual. Compulsive	3	AS	0	1
	2. Above average	2	AS	9	10
	3. Occasional	1	AS	43	24
	4. Never or only under stress	0	—	38	56
	5. Never, regardless of consequences	2	CS	10	9
Truancy (From home or school) (F.22a, 22b combined)	1. Wanders more than weekly	3	AS	5	1
	2. Weekly to monthly wandering	2	AS	6	1
	3. Monthly wandering	1	AS	19	15
	4. Occasionally fails to say, or late back	0	—	61	64
	5. Home tied. Never late or out without permission	2	CS	9	19
Stealing (F.23)	1. Persistent, compulsive, including valuables	3	AS	0	0
	2. Chronic petty pilfering, home or outside	2	AS	3	4
	3. Occasional pilfering outside home, money from parents	1	AS	10	3
	4. Occasional "borrowing"	0	—	46	42
	5. Never steals; looks for owner if finds lost property	1	CS	41	51

TABLE A4. UNCLASSIFIED SCALES

Scale title (Macfarlane equivalent in brackets)	Abbreviated description	Score	Percentage distribution Boys	Girls
Sensitive (G.35)	1. Super-sensitive	3	4	5
	2. Over-sensitive	2	41	44
	3. Normally responsive	0	35	35
	4. Matter-of-fact, not easily hurt or upset	0	15	13
	5. Callous, indifferent	3	5	3
Specific fears (G.37 modified)	1. Extreme, incapacitating	3	3	0
	2. Less extreme; may lead to flight	3	6	8
	3. Certain marked fears (e.g. dark, dogs)	2	19	24
	4. Slight apprehension; can face in company	1	38	24
	5. No fears beyond legitimate caution	0	34	44
Lack of confidence (G.46 modified considerably)	1. Parents' approval dominates values and interests	3	1	1
	2. Needs constant approval; easily swayed	2	27	23
	3. Likes to try alone, may need reassurance	0	37	50
	4. Prefers not to be helped	0	33	23
	5. Rejects assistance, aggressively independent	2	2	3

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PSYCHOTHERAPY OF A DEPRIVED CHILD

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INTRODUCTION

THE problem of treating effectively children whose personalities are severely disordered as a result of emotional deprivation in the early years is only too familiar. The inability to form interpersonal relationships creates a serious barrier to the use of therapeutic methods, the success of which so largely depends on this very capacity. Bowlby (1951) describes these children as 'affectionless' because of their inability to make genuine emotional relationships. He quotes Goldfarb (1947) as stating that he has never seen "even one example of significantly favourable response to treatment by traditional methods of child psychiatry", and Mender (1947) as saying that "once the defect is created it cannot be corrected". Bowlby reserves judgement about more hopeful results from various other sources. While we do not dispute his conclusion that it is both more practical and cheaper to concentrate on prevention, it would seem worth while to record a more hopeful result with treatment than has usually been obtained, especially as this was conducted within the routine framework of clinic activities.

CASE MATERIAL

Helen first attended the Notre Dame Child Guidance Clinic in September 1956 aged 4½ years. She was living at that time with foster-parents who had taken her from a children's home at age 2 : 3. Of the first two years of her life only a few meagre facts were available. She was the third illegitimate child of a woman who had been orphaned at an early age and brought up in various institutions and by numerous foster-parents. Helen was born in a home for unmarried mothers, where she remained with her mother for six months. They then moved to a hostel where they stayed for another six months. Although mother and child were together for the first year, there was probably very limited contact between them, e.g. at the age of three months the baby was trained to hold a bottle and feed herself, and in the hostel the mother had to help look after twenty-four other babies. Helen was then placed in a children's home and remained there for fifteen months until taken by the foster-parents, Mr. and Mrs. Brown. She was described as a 'very good and placid baby', but at one stage was seriously ill with pneumonia. She had two periods in hospital, for one week with scarlet fever at 3 years, and two weeks with dysentery at 4 years.

At 4½ years she was first referred for a psychiatric opinion by the dermatologist who was treating her for alopecia which he suspected was self-induced. The psychiatrist (F.H.S.) summarized her behaviour as follows: "The hair pulling and sucking

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takes places only at night, and when methods such as hand-tying have been used to stop it, there is prolonged and bitter crying. There is also continual sucking of the right forefinger on going to sleep, and during the night. Her sleep is always restless and there are frequent calls for the foster-mother to sleep with her. She is very quick-tempered. Two years ago (at 2½ years) her speech was a meaningless jumble but has improved greatly. There was enuresis day and night until four months ago. The girl's own mother intends to marry shortly and has the right to take the child back. Not surprisingly this is very unsettling for the foster-mother, Mrs. Brown, who seems to handle the child with much understanding and affection, and this insecurity is no doubt felt even by such a young child." When tested at 4 : 9 her I.Q. was 81 (Terman–Merrill, Form L). The psychologist commented that during the test Helen showed a quick regression to an infantile level of response on several occasions, speech becoming unintelligible.

Contact was established with the Children's Department, in the hope that the situation might be improved administratively. In this we were disappointed, but decided nonetheless to begin treatment. It was thought that group therapy should be tried in view of the poor results reported in similar cases with individual treatment. For six months Helen attended once a week for play psychotherapy in a group of about six children of varying age, whose members changed from time to time. This type of 'open therapy group' which is generally employed elsewhere only for diagnostic observation is now a characteristic of the Notre Dame Clinic. In Helen's case this was considered to be a stop-gap measure until a suitable 'closed group' could be formed.

Helen was pathetically eager to please. She was quite uninhibited and over-friendly, straightaway throwing her arms round the therapist's neck. She spoke with a lisping baby voice, and her behaviour and performance with toys were on a two-year level. She was almost exclusively occupied with dolls and prams, demanding numerous covers which she folded carefully on top of her doll. She showed meticulous personal cleanliness. In spite of her seemingly affectionate manner and her compulsive need to touch, there was little real contact with adults, and none at all with the other children. At the end of this period she was unable to distinguish any child by name and indeed, for the most part, seemed unaware of them. She was tense, restless and distractable. About this time she first attended school, where it was reported that she had "settled down and was coping reasonably well".

She was now included in a 'closed group'* with three other children of approximately her own age, 5 years. At first she remained completely isolated, but later made desperate efforts to join in group activities. The others regarded her as a baby and referred to her as "wee Helen". They rejected her clamouring advances and were openly hostile. It became obvious that the intimacy of this group was adding to Helen's anxiety. There seemed no change in her personality and at the end of six months this method was discontinued. If anything, her symptoms appeared worse. She was pulling out her hair so badly that one side of her head was almost bald. The severe bouts of screaming which occurred practically every night were a great trial to her foster-parents.

By this time we had come to know the Browns fairly well. Both were over fifty

*A group of fixed membership with one therapist.

when they had taken Helen from the children's home. Mr. Brown was a barman and was therefore out every evening. Their own three children were grown up, and Mrs. Brown had thought a little girl would be company for her. She had fostered seven other children previously and was capable of giving affection and a measure of security. Later it became clear that she was unconsciously deriving vicarious satisfaction from the child's difficult and especially aggressive behaviour, of which she never ceased to complain. She denied having threatened Helen when she misbehaved but said that her husband, in an attempt to control the screaming, had told the child that she would be 'put away'. Contributing to Mrs. Brown's ambivalence was the uncertain role of Helen's own mother who already had legal access to the child twice a year. It later transpired that these meetings took place in a corridor of the Children's Department. No explanation was offered to Helen as to why she was there, her mother being introduced to her as 'the lady'.

In view of the foster-mother's age and rigidity it would have been unrealistic to attempt any major modification of attitude, and at this time we discussed with the Browns whether long-term placement in a children's home would not be a more satisfactory solution for all concerned. One month later Mrs. Brown reported that she and her husband had become genuinely fond of the child, and in spite of her behaviour had decided to keep her, in their own words, 'no matter what'. Because of the uncertain future and probable repercussions on the foster-mother it was decided not to tell Helen that she was fostered. Although it seemed clear that the child was already aware of this fact, it was felt that verbal confirmation would inevitably give rise to more difficult acting-out behaviour which, at this time, Mrs. Brown would have found intolerable. Casework with the foster-parents, though necessarily restricted to a level of sympathy, support, explanation and encouragement, was nonetheless indispensable.

Helen, now aged 5 : 9, seemed unable to settle, and for a period of about 3 months wandered aimlessly about the clinic between other groups of children without forming any real contacts. Then of her own accord she returned to the open group. Persistent efforts to establish a relationship having failed, a rather different technique was employed. *The therapist remained passive, made no effort to contact the child, responded to her incessant mechanical demands with the minimum of speech and yet maintained an alert and accepting attitude.*

At the end of four weeks the following developments were observed. The child was less restless. She seemed more interested in what was going on in the playroom, and could identify two children by name. She more often sought assistance from the therapist in dressing dolls, doing jig-saw puzzles, etc. A week later she brought with her a large doll, and demanded that the therapist feed it while she watched intently, sometimes directing the bottle to her own lips without sucking. She stared solemnly into the therapist's face for long periods. For the greater part of each of the subsequent nine sessions, Helen demanded to be nursed and fed. As she sucked, her eyes appeared glazed and un-focused; from time to time she gurgled and made gooing baby sounds; her hand explored the therapist's face and neck, sometimes pulling at her hair. She seemed oblivious to her surroundings. The six-year-old child had regressed to early infancy. Curiously, no parallel regression was reported at home.

It is worth recalling that all this was taking place in the presence of several somewhat older children and one or two student observers. The other children at first seemed fascinated and rather embarrassed by Helen's behaviour, but as time passed they appeared to accept the situation, and certainly did not seem over-anxious. In the next few interviews she demanded to be wheeled round in a doll's pram, saying, "Kid on I'm just learning to talk". She proceeded to name simple objects such as 'pram' and 'doll' in a high-pitched babyish voice. At times she crawled on the floor and called "Mama" when she wanted to return again to her pram.

This brings us after eighteen months attendance to a new phase of phantasy play in which Helen (age 6 years) revealed her overwhelming longing for love and affection and her intense fear of banishment. These wishes and fears demanded interpretation, as did the defences she erected in the face of acute anxiety and rising panic. After the first few sessions of this new phase Helen was removed from the open group as it was realized that she demanded the therapist's undivided attention. However, when taken by herself she seemed most unhappy and reluctant to play. *A solution to this special problem of individual treatment proved satisfactory when it was discovered that her considerable anxiety was sufficiently relieved for therapy to progress, by the presence of one or two student observers who sat in the playroom during every session for the remainder of this six months period.* There follow some excerpts from more characteristic sessions as recorded at the time by the therapist (L.L.).

Session A

"Helen asked if I would play at school. She said I was to be 'the teacher', and call her out and give her 'the belt'.* She said this was because she had been talking. I said, 'You want me to punish you because you were bad'. She at once said 'Will you be the wee girl and I'll be the teacher?'. She commanded me to 'come out' and strapped me lightly on the hand because I was talking. She wrote numbers on the blackboard and instructed me to read them. I read them correctly and she looked very exasperated, whispering then, 'You've to go wrong'. When I read them wrongly she shouted and scolded me, strapping me much harder this time. Each time she strapped me she looked anxiously into my face. With hands clenched she suddenly asked 'Will I be coming here next week?'. I said 'You feel I won't want you to come because you've been bad'. She did not reply but ordered me to sit at the desk and whispered, 'You're good now—I'll let you take the class'. She dashed into the Wendy-house and filled a saucepan with water. She very carefully held this to my lips urging me to 'drink it really'. She alternately fed me and herself with water. I said 'When you are good you get fed'. She gulped the water noisily and said 'Not when you're bad'. I said 'You're afraid I won't feed you', and she replied 'Don't be so daft, Miss Lavery'."

This "identification with the aggressor" is a commonly observed defence in children who are working out problems of aggression but the neurotic child will seldom, if ever, adopt the passive role. This session illustrates a characteristic feature of this child's personality—namely, "role diffusion". We observed her transitory role, as the bad pupil, the bad teacher, and latterly the good pupil-child and teacher-mother. This last duality is precisely that often seen in late infancy when the child feeds its mother.

Session B

"Helen at once asked me to be 'the wee girl', while she was the teacher. She seemed compelled to leave the school game at times, wandering restlessly and apparently aimlessly about the room, telling me to watch the class while she was away. She looked tense and anxious. Quite suddenly and purposefully she brought the large doll and put it on my knee. She gazed earnestly into my eyes and said she was looking after 'this baby'. She stressed she was not the baby's mother, who had died, and said that she had to look after her. She asked me to help her wash, change and feed the doll. She treated it with alternating tenderness and abuse, and scolded it a great deal for being dirty, or having wet."

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*Corporal punishment is still widely used in Scotland.

This is the first indication that Helen is aware of her reality situation as a foster-child. The equation of dirt with badness, and the fear of rejection is particularly strong as in so many children with earlier experience of rigid institutional training. The preoccupation with cleanliness and the equating of 'bad' and 'dirty' is a characteristic feature of many sessions.

Session C

"She said she was the mother and had a baby and a big girl. She told me to pretend to be 'the doctor' and examine the baby. She said, 'The baby will have to go to hospital because of the pain in her tummy', and asked me to re-assure her that she would be out in time to go on holiday. Directly after appealing thus, she darted to the dining-room of the Wendy-house and pretended to shut and lock the imaginary door. When I asked her about this she very casually said, 'I'm just telling the big girl to keep out of the way'. I said it looked as if she were telling her to hide in case she had to go to hospital as well. There was a marked increase in agitation and she called, 'Helen you stay in there and they'll not find you'. I said 'You're afraid she'll have to go away from her mummy'. She stood quite still, looking steadily into my eyes and whispered, 'Yes'. Then she said anxiously, 'Will the baby get out of hospital in time to go on holiday?'. I assured her she would. She rather anxiously asked me how much time was left, saying that we *must* get to the seaside before we stopped. She set forth slowly from the Wendy-house wheeling her pram, with the baby carefully tucked in, and instructed me, as the big girl, to hold on to the pram-handle. She told me to climb with her into the seesaw-boat and pretend it was the bus. After a short time she said we had arrived. She walked some distance away, turned, and ran to me saying 'Darling, darling Helen, I thought you were lost'. She hugged me, almost convulsively, and I held her tightly and reassured her. I then said, 'Helen is very afraid of losing her mummy'. She remained silent, burying her head against me for a few moments. She left the clinic apparently composed."

Here we see clearly the child's desperate efforts to cope with her fear of abandonment. In a variety of situations she is the wished-for protective mother, allocating to the therapist the successive roles of the threatening doctor, Helen as a big girl, and Helen as a baby. *For several weeks as she played in the Wendy-house, Helen appeared to avoid looking in a mirror. At one point during each session she carefully turned the mirror to face the wall. She refused to discuss this pre-occupation.*

Session D

"After a good deal of preliminary indecision as to whether I should be the 'wee girl' or the mother she finally decided to make me 'the auntie' while she pretended to be 'the mummy'. She gave me the feeding bottle, telling me to feed her baby. She watched me doing this for a while and then said, 'She wants you to do it, she doesn't want me'. I said, 'The baby doesn't want her mother' and she answered 'No, she doesn't like me'. She ran to the mirror and studied herself very closely. She was smiling, pursing her lips, turning her head from side to side. I commented that today she wanted to see herself in the mirror. She answered with a dreamy, detached air, 'Yes, because I'm happy today, that's why'. She continued to gaze at her reflection, then suddenly turned the mirror to face the wall and ran to me, snuggling into my side. I said, 'You got frightened', and she whispered, 'I don't want to see me when I'm different'. When I tried to speak now she shouted to drown my voice, telling me angrily that, as the auntie, I had to go to my own house (indicating the playroom) and she would come and visit me. She knocked loudly on my door, and greeted me with a bright 'Hello, Auntie'. She sat staring at me, with an inscrutable expression, and then with a complete change of mood, and in a small pathetic voice said, 'I want to be the sick wee girl, and you'll be the doctor'. She changed her mind almost at once, saying, 'You'll be the mummy and I'll be your wee baby, and then you'll take me to see the doctor; you can be the doctor then'. She climbed into the largest doll's-pram, her legs touching the floor, and asked for the feeding-bottle. She anxiously asked what name she should have saying 'Do you think it should be Christine?' I said I thought it should be Helen and she seemed relieved, agreeing at once. I now had to be the doctor, 'sounding' her with the toy stethoscope and taking her temperature. I then had to wheel her back to the Wendy-house. She said she was to be better and not have to go to hospital."

In order to understand the use of the double adult figure, here introduced for the first time, as well as the mirror-turning sequence, it may be helpful to start with the crucial phrase, 'I don't want to see me when I'm different'. She has just spent a brief moment in dreamy ecstasy, contemplating her reflection, and we postulate that what she is seeing is the "good mother". Having acknowledged the bad part of herself which hates her mother, she can now enjoy the role of the 'innocent baby' being fed by the "good mother". She is terrified, however, that she cannot sustain this position, and she therefore uses the magic manoeuvre of turning the mirror to the wall before the reflection can change to the "bad child". It is extremely difficult to dissect out the sequence of introjection, projection, re-introjection.* Helen, then, has achieved her moment of bliss, but it should be noted that the price she has paid is the use of "splitting". In some respects the second half of this session is a variation of the theme already played out. Being fed in the doll's pram is analogous to the mirror gazing, and the "happy good self" needs a new name.

Characteristic of each session in the subsequent five months was the endless repetitive-compulsive playing of the 'mother and wee girl' theme. While it was felt that therapy had become somewhat static, the remarkable progress observed in the child's general development, notably the active learning of motor skills, led us to believe that this period may well have been necessary for the internalizing and strengthening of personality gains achieved in the earlier phase. Helen mastered the art of skipping and ball-throwing, in which she achieved more than average proficiency in the short space of four weeks. Perhaps as a result of acquiring these new skills, and therefore competing on more level terms, her relationships with her peers improved considerably. This was confirmed in a report from her school teacher, who wrote, "Helen formerly bullied other girls, but this has not been in evidence of late". She was said to have difficulty in learning arithmetic; otherwise her school work was fairly satisfactory.

At the end of this period when she was aged 7 : 5 her intelligence was retested. The same psychologist who had tested her previously found an I.Q. of 91 (Terman–Merrill Form L) and remarked (1) that there was now no emotional regression. She seemed to have been able to discard the infantile behaviour and retain her capable attitude; (2) that her hand and finger co-ordination was still below standard, but memory span had increased, particularly for digits; (3) that she was able to pay more attention to, and to retain the substance of, the spoken word. This was noticeable in vocabulary (which increased from 0 words in the first test to 7 words in the second) and in memory for stories; (4) that there was now more visual discrimination, as shown in her success with pictorial items. In the clinic the most striking behavioural change observed was her composed demeanour when introduced to strangers, or faced with new situations. This was in marked contrast to her former, facile, over-friendly manner. At home she still had occasional tantrums, but the foster-parents found her less difficult to manage, and reported that she was otherwise symptom-free.

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*The resemblance is striking to the symbolism in the story of "Snow White", in which the beautiful, bad Queen, asks "Mirror, mirror on the wall, who is the fairest of them all?" The evil step-mother theme is a disguise for the mother-daughter ambivalence, probably an inevitable phase for every girl as she aspires to sexual maturity.

Although the future was still uncertain, the situation regarding the legal aspects was a little easier. The psychiatric social worker managed to gain an interview with the natural mother who appeared almost completely lacking in affect. She now stated definitely that she had no intention of marrying and taking the child, to whom she seemed quite indifferent. She was willing to stop seeing Helen each year, readily agreeing that these meetings held little meaning for her, and were upsetting for the child.

The situation was reviewed at this stage and it was felt that further progress was likely to be held up unless the child was told the facts of her real-life situation. If this were carried out, we realized that with the subsequent release of fantasy, and to meet her need of fully testing-out the therapist, Helen would require more intensive treatment, probably two or three times a week. Individual therapy was considered necessary and was by now acceptable to the child. The psychiatric social worker considered that Mrs. Brown was more confident in her relationship with Helen, and would co-operate, but that she would require much support if she were to cope with what undoubtedly would be a very trying time, before further progress could be realized.

As we had decided, Helen (age 7 : 10) was told that she was fostered. There followed an immediate move in therapy, which had been static for some considerable time. The therapist was now given the role of the father, a figure introduced for the first time. A doll was used as the child and Helen became the mother. Reality crept into this repetitive play as the christian names of the foster parents (George and Grace) were invariably used and the doll referred to as "Helen". The central theme of this phase, which lasted roughly four months, was of the child in constant peril of being 'taken away' by robbers and 'bad men', and the father and mother rescuing her 'in the nick of time'. Each episode was played with great intensity of feeling. The doll was pulled and torn in desperate struggle as frantically the mother called "George, come and save your wee girl!" Many tender and loving scenes were enacted in this play which portrayed the combined parental protection of the child. There now followed a period in which one parent would become 'fed up' with her because of dirty and bad habits (usually soiled or screaming), and the other would make excuses for her: e.g. "She's only a wee girl, she'll know better when she's big". Into this phase Helen introduced the fostering situation. During one session in which she had again raged and stormed at the child for being dirty, she announced: "You'll be sorry, George, the day you ever took her from the home"—and later actually said: "You'll be sending her back!"—opening the way to more direct interpretation by the therapist. This clear expression of her deep fears of banishment appeared to end the necessity for repetitive compulsive play. In the interviews that followed, Helen talked openly about children in homes. She expressed how lucky she was and agreed that her parents also had been lucky to get her.

At this stage it was decided to terminate treatment. Helen (now 8 years old) and her foster-mother were interviewed jointly by the psychiatrist (F.H.S.) who noted: "Even allowing for my subjective bias—and I want to see a rosy picture—this is a most impressive recovery. She is really a 'different' child, even facially, and this is not just the result of a becoming hair-style. She is controlled without tension, contained without withdrawal, reserved without coldness. The effect is to remove the last traces of indiscriminate relating. She is symptom-free. Mrs. Brown looks older and rather drawn . . . but calm, affectionate, even proud. Helen, she says, reads little except for her illustrated Bible—her favourite pictures are 'Moses in the Bullrushes', and 'Moses and the Burning Bush'. It is not surprising really that she should be fascinated by another foster-child. She wants to be a children's hospital nurse, and plans to come and discuss this with me when she is fifteen." At the time of writing Helen has reached the age of 13, and her progress has been maintained.

DISCUSSION

It is difficult to account confidently for the symptom of hair-pulling. Occurring along with night-screaming and finger-sucking, it is really part of a nocturnal syndrome. We do not know whether the essential factor in hair-pulling is the self-induced discomfort of tugging, or the wish to have hair wrapped round a finger to suck. Perhaps Buxbaum (1960) is right to stress "The amalgamation of painful and pleasant sensations" and to see here the starting point of masochism. The children described in her paper are thought to have suffered traumatic experiences relating to misconceptions about parental genitalia at about eighteen months of age. Unfortunately, the course of Helen's early years prevents our having any accurate data, nor did her fantasy productions yield material of this kind. Hair-pulling as a symptom has received little study, and this is also true of mirror-preoccupation. It was, therefore, arresting to discover that Schur (1955) had dealt with both themes. In discussing manipulations of hair and skin he affirms their compulsive, self-destructive character, and of hair-pulling he writes, "The mechanisms of incorporation of the object, of the merging of the object with parts of the self, the fusion of libidinous and destructive aims, is here quite evident". If hardly quite evident, we agree it is a reasonable way of regarding the symptoms. Later on in his discussion of certain patients incessantly preoccupied with skin lesions, Schur describes what he calls "ego regression which", he maintains, "explains the presence of primary-process thinking in the symbolic elaboration of the lesions and the manipulations". He describes how these are performed in a state of reverie under detachment of cathexis from the environment. The mirror remains the sole object representation. In a footnote he, like ourselves, quotes the Wicked Queen's address to the mirror in the story of Snow-White. However, it seems very doubtful that any single psychopathological pattern is specific for hair-pulling, apart from the fusion of pain and pleasure experience.

During treatment the apparently necessary early stage of an "open" group, with changing membership and, perhaps more important, the presence of more than one adult, is intriguing. Perhaps it is best understood as neither making demands for an intense one-to-one relationship as in individual therapy, nor for the inevitable sharing of the therapist as in a closed therapy group. Lacking all sense of trust, every stimulus was to Helen potentially dangerous, but in the open group the way was always open for flight. It is possible that with a modified approach, individual psychotherapy could achieve this same preliminary step.

To explain the move to regression which apparently resulted from the therapist's adopting a relatively passive attitude, we suggest that this role is likely to have appeared to the child as the non-threatening aspect of the nursing and feeding mother, who is available, attentive, giving, and undemanding. Besides the early separation experience there is in this case the additional factor of an inadequate mother, related to Helen's mother's own early deprivation.

Before undertaking the treatment of a deprived child it seems essential that the child's current home life should be on as permanent a basis as possible. The therapist has to bear in mind that where young children are concerned, she is not only the object of transference and a provider of substitute gratification, but is also a real person who can play a highly significant role in the child's early life. This inherent problem is manageable, and we all cope with it, when there is a real and reliable father and mother at home. Where the child's reality situation in the family is uncertain, there may be an argument against fostering such a relationship with the child in therapy.

We are well aware of the limitations of a single case-record, and how tentative the conclusions must be. It would be naive indeed to present this record as the successful psychotherapy of an emotionally-deprived child, although it may be. That Helen at the age of four years when first seen was an emotionally-disturbed child cannot be doubted, though it may be questioned whether the personality picture was truly that of an "affectionless character". We believe that there is a "deprivation-spectrum" and that Helen was well advanced along it. We do not aspire to greater clinical precision. Now at the age of thirteen years she is not only symptom-free but has achieved considerable social development in the special sense of a capacity for interpersonal relationships. This is as gratifying as it is unexpected, but of course there is no proof that this was achieved by psychotherapy and/or casework. However, we are encouraged to believe that recovery was not unrelated to our efforts, firstly, because progress seemed to start when usual procedures of therapy were deliberately modified in the direction of a more attenuated contact; secondly, because the same strategy is proving effective with other like cases; and thirdly, because Alpert (1963) has arrived at a very similar technique. *It seems possible that psychotherapy as earlier reported has consistently failed because the methods employed, while appropriate for neurotic children, are too intensive in the case of deprived patients, i.e. they demand a capacity for interpersonal relationship with the therapist which by definition these impoverished personalities lack.*

SUMMARY

An account is given of the management, and especially the psychotherapy, of a foster-child with a history of early emotional deprivation referred at the age of 4½ years, because of hair-pulling. An unexpectedly good response was obtained, attributed to modifications in psychotherapeutic technique involving (1) a preparatory phase, in an "open" children's group with more than one adult present, and (2) the adoption of a relatively passive attitude by the therapist. The discussion

focuses on the psychopathology of hair-pulling, and suggests an explanation for the frequent failure of psychotherapy with emotionally deprived children.

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THE BEHAVIORAL TREATMENT OF AN ELECTIVE MUTE

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THIS report describes a new application of a technique originally designed for modifying hyperactive behavior in the classroom (Patterson, 1964). In addition data are presented which help to clarify the social consequences of the technique. In Patterson's procedure a small signal light and a counter of the odometer type are placed on the hyperactive child's desk to serve as a secondary reinforcer for periods during which hyperactive behavior does not occur. Another reinforcer, e.g. candy or pennies, is given each day at the end of the training period. The child is told or taught beforehand that each activation of the signal light and counter means an additional penny or piece of candy at the end of the period. According to the study cited above and to later studies (Patterson *et al.*, 1964; Anderson, 1964), the technique is effective in treating hyperactivity, but apparently the social instigating and reinforcing behaviors of the peers are an important variable. Such changes in peer behavior were readily apparent to the observer but were not recorded in any of the original studies. In the case study reported here, a record was kept of that verbal behavior of the peers which was directed towards the subject.

The case presented in this report differed from those previously reported in that the disorder was elective mutism in the classroom. Reed (1964) has commented on the difficulty of treatment with these cases and also summarized some of their diagnostic characteristics. The present case showed such characteristics as (*a*) remaining silent except with intimate friends, (*b*) showing unusual timidity and shyness, (*c*) having no known neurological deficiencies, (*d*) reported mute from his entrance in school at age six, (*e*) doing unsatisfactory academic work, and (*f*) scoring in the defective range on intelligence tests.

CASE HISTORY

Gene was a 14-year-old boy in a school for the mentally retarded. He had been transferred to the special school from the public schools at the age of eight. At that time, as at the time he was seen for treatment, two important symptoms were (*a*) an apparent inability to do satisfactory academic work and (*b*) a lack of verbal responsiveness. His I.Q. as measured by the Leiter International Performance Scale (Leiter, 1948) in 1964 was 52. Several earlier tests with the W.I.S.C. and Stanford-Binet had indicated I.Q.'s of from 60 to 65.

Gene's academic and social progress during the five years preceding treatment had fluctuated considerably showing frequent regressions. For example, he learned how to add and subtract to the number five on one day, but had apparently forgotten this skill on the following day. It was observed that he responded better to women, and made more academic progress during a year when a woman volunteer worked with him at least once a week.

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His teacher reported that Gene's behavior at the beginning of this school year was consistent with his previous school years. During the first two weeks of classes Gene did not utter one word in the classroom, not even when asked to do so. It was reported that he made a few vocal responses to some of his peers on the playground and on the schoolbus. Some of his peers explained for him that he would not talk. Gene would appear to "tighten up" physically by crossing his arms, holding his breath, and looking away from the questioner. On the other hand, if he was asked to perform a motor task such as opening a window, turning on the lights, or throwing away a piece of paper he would immediately do so.

Gene's teacher made considerable efforts to increase his responsiveness during the months before experimental treatment began. The results were discouraging. The teacher tried such tactics as repeated and persistent encouragement, mild coercion, and immediate praise for any signs of response. On one occasion Gene was told that if he did not respond, no one would eat lunch, and he could not go to school the next day. The task was to read aloud a sentence from the text after hearing the teacher say the same sentence. Gene stammered, made a series of facial gestures, and blurted out a reasonable approximation to the stimulus words. After this, in the teacher's opinion, Gene was somewhat more responsive to requests and social prodding from the class and teacher.

During the months preceding treatment Gene's behavior outside the classroom contrasted with his non-communicativeness within. For example, he would lead the students on short hikes, keep them in line, show them alternative routes, and assume responsibility for the group. Upon returning to the classroom, he would resume his mute role. There was ample other evidence indicating that Gene was capable of talking and performing on a relatively adequate level for an adolescent boy.

Because it appeared as though Gene's refusal to talk was directed particularly against the teacher, he attempted to find additional ways of establishing a relationship with the boy. In January he took him to a local pet shop, because he had indicated an interest in animals. Gene was shy and nervous while alone with his teacher away from school, yet his interest was obvious. A few days later the entire class visited the pet shop, and Gene conducted a tour, including a demonstration of how to make the Mynah bird talk.

Gene's academic work, arithmetic, reading, and writing, was done poorly or not at all. A similar pattern had been reported for other years. His teacher and other observers reported that the impression conveyed is not so much that Gene could not perform but that he would not.

TREATMENT PROCEDURES

The work with Gene was divided into four phases: (1) preliminary observation, (2) systematic observation, (3) treatment, and (4) post-treatment observation.

The first phase, preliminary observation, began with the beginning of the school year in September. Gene's behavior in the classroom was observed from time to time by several persons, and informal reports were made to a study group every other week or so. His teacher was a member of this group. During this time initial attempts were made to formulate Gene's problem in terms of observable behavior (or lack of it). The teacher was encouraged to continue attempts to treat him. By January when the group was formed for the purpose of treating Gene, the problem had been formulated as social non-responsiveness, particularly verbal non-responsiveness, directed largely towards the teacher, but generally noticeable in the classroom. In order to systematize record keeping, a list of Gene's more prominent responses to another person was prepared and coded for ease of scoring. These typical behaviors were: looking at the other person, smiling at the other person, responding by some motor activity, no response, or talking in response. Although the last response was rarely observed, it was included because its absence was considered the most important sign of his pathology.

During the second phase (systematic observation) Gene's behavior was carefully recorded for 21 days, 20 minutes a day. All occurrences of the five responses listed above were recorded during the 20-minute period. In addition, a record was kept of who directed the question or other eliciting stimulus at Gene, whether instructor, volunteer, or peer. Where Gene made more than one response, his responses were recorded in order of their appearance. Systematic observation, treatment, and post-treatment observation were all begun at the same hour of the day, 11 o'clock or a few minutes after, during what was usually an arithmetic class for the children.

Patterson *et al.* (1964) report correlations between pairs of observers for total frequencies of non-attending behaviors of 0·90 and 0·91. In the present study observer reliability was not systematically checked and there is reason to suppose that where observers worked together their observations were not entirely independent. However, frequencies of talking recorded by two observers who worked together for five days correlated 0·95.

The third or treatment phase lasted for 18 days, 30 minutes a day. During the first 10 minutes Gene's behavior was observed and recorded with no reinforcement being given. During the remaining 20 minutes reinforcement was given as described below. The reinforcing apparatus was as described by Patterson (1964)—a small box containing an electric counter, with a light bulb on top. For the treatment of Gene this box was placed in front of the room where all of the class could see it. Light and counter could be controlled by a member of the treatment team who sat in an observation booth at the rear of the classroom. Members of the class were already somewhat familiar with this apparatus because it had been used in the room during the fall and early winter for the treatment of a hyperactive retarded boy (Anderson, 1964).

On the first treatment day one of us explained to the class what was happening somewhat as follows:

> This is a magic box which we are going to use to help Gene. Gene has trouble answering when the teacher or someone else speaks to him. It is very important to Gene that he learns to talk in the classroom when asked. Also, by talking Gene will earn a party for the class. Each time he talks when asked, this light will go on. We will count up how many times he has talked each day and mark it on this chart. When the chart is full, Gene will have earned a party for the class. You can help Gene earn the party for you by helping him to talk. Now we will show you how the magic box works.

The teacher then approached Gene and asked him a simple question. After some stuttering Gene was able to come up with an answer (incorrect), the bulb lighted, and the counter buzzed and clicked. Following two more demonstrations of the apparatus the class was continued as usual.

A reinforcement was given each time that Gene responded vocally to some appropriate instigation of another individual—usually a question or request from the teacher. Responses of more than one word were given triple reinforcements. Although Gene's behavior was highly variable, and the classroom activities were not always appropriate for eliciting responses, he was generally reinforced between 80 and 100 times during the 20 minute session. At this rate the chart was filled in and he earned the classroom party after nine days, and the party was held on the tenth day.

Until the party was earned, the only reinforcements were from the light, counter, and chart. Progress was entered on the chart in front of the class immediately following each day's conditioning session. Following the party, small candies (M & M's) were used as reinforcers and distributed to the class following each treatment period.

During the post-treatment observation Gene was observed for 9 consecutive school days for 30 minutes a day. The purpose of this was to determine if the effects of the treatment continued after reinforcement was discontinued.

PROGRESS

The total amount of talking done by Gene is shown in Table 1.

TABLE 1. FREQUENCY OF TALKING

	Total observation time	Frequency of talking	Frequency per ten min
Before treatment	420 min	97	2·31
During treatment	180 min	493	27·39
After treatment	270 min	852	31·56

$\chi^2 = 1008{\cdot}16 \quad P < 0{\cdot}001 \quad df = 2$

These figures are based upon the observation of clear, meaningful vocalizations consisting of one word or longer. Before treatment Gene's vocalizations in the classroom were almost entirely monosyllabic. By the 12th day of the reinforcement period it became clear to the observers that much of Gene's talking consisted of sentences or longer utterances, therefore utterances of more than one word were recorded separately. As recorded from the 12th day of reinforcement to the end of the post-treatment observation, 34·2 per cent of Gene's utterances consisted of more than one word. To the best of our recollection prior to reinforcement, all of his statements were monosyllabic.

A chi-square analysis of the data in Table 1 was done by basing the expected frequencies upon the total amount of observation time within each phase of the study. The chi-square analysis shows that the frequencies within the different phases are significantly different from one another ($p < 0{\cdot}001$). Analyses of individual pairs show that talking during each phase is significantly increased over the preceding phase.

The frequency of Gene's vocal responses to the instructor is shown in Table 2. Analysis was done by basing expected frequencies upon the number of instructor's questions or other promptings. The chi-square analysis shows that the frequencies within the different phases are significantly different from one another ($p < 0{\cdot}001$). Analyses of individual pairs show that the significant difference is between the frequency of talking in phase 1 and the other two phases.

The frequency of peer vocal approaches to Gene is shown in Table 3. The overall analysis indicates that there were significant effects ($p < 0{\cdot}001$), and analyses of

TABLE 2. TALKING IN RESPONSE TO INSTRUCTOR

	No. of instructor's questions	No. of vocal responses	Proportion of vocal responses
Before treatment	311	35	0·11
During treatment	195	105	0·54
After treatment	292	178	0·61

$$\chi^2 = 106{\cdot}62 \quad P < 0{\cdot}001 \quad df = 2$$

individual pairs show that peer approaches to Gene increased significantly during each phase of the study.

TABLE 3. PEER VOCAL APPROACHES TO GENE

	Total observation time	Number of approaches	Number per ten min
Before treatment	420 min	15	0·36
During treatment	180 min	28	1·56
After treatment	270 min	139	5·15

$$\chi^2 = 183{\cdot}93 \quad P < 0{\cdot}001 \quad df = 2$$

DISCUSSION

These data offer strong support for the hypothesis that Patterson's technique for manipulating classroom behavior was effective in changing the patient's elective mutism. Within the time period of the study there is no doubt that Gene's vocal responsiveness increased markedly and that peer vocalizations directed towards him also increased. Not recorded in this study were the peer comments, gestures, and other forms of encouragement and pressure for which no particular vocal response was demanded of Gene. The observers were convinced that such demonstrations of peer interest increased from near zero, prior to reinforcement, to a high level during and following reinforcement, corresponding to the recorded increase in peer vocalization. The recorded data are compatible with the hypothesis that peer reactions play a role in maintaining the reinforced behavior after the experimental reinforcements are stopped. There is no reason, however, to believe that other effects of the new behavior are not also influential, and the question of how long the new behavior is likely to be maintained is not answered.*

It was anticipated that Gene's classwork would improve with his increased vocal responsiveness, although no measures were planned to record such a change. However, Gene's teacher was impressed by the change in his scholastic output. He reported toward the end of the experiment that since the reinforcement phase of the experiment had begun, Gene had completed two full workbooks at a rate of about one workbook in two weeks. This compared with what the teacher described as a prior production of one or two pages in the workbook per week, or perhaps somewhat more than one workbook completed in a year.

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*Upon inquiry during February of the following school year, the school's director reported that some of Gene's gains had been maintained but that his responsiveness was not at the same level as immediately following treatment.

The success of this method with other cases of elective mutism awaits further trials. The case reported was the only school-age child known to us with this disorder. It seems to us that the usual criteria applicable in the operant conditioning of human behavior are applicable here, i.e. the operant rate must be greater than zero, and an effective reinforcing operation must be available. Where speech never under any circumstances occurs in the classroom, then it may be necessary to place the elective mute in a situation where speech will occur, and make this situation more and more like the classroom, after the rate of vocalization has increased. Reed (1963) presents a method somewhat like this, but used as reinforcement only whatever personal influence and rapport the therapist had with the child. Presumably peers are much more reinforcing than therapists.

SUMMARY

A reinforcement procedure is described which has been used in the classroom for the modification of hyperactive behavior. The reinforcement consists of flashing a signal light which means that a reward such as candy or points towards a party has been earned. The application of this procedure to a case of elective mutism is described. Significant increase in talking occurred. Data are presented suggesting that changes in peer behavior are an important part of the procedure.

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BOOK REVIEWS

The Family and Individual Development. D. W. WINNICOTT. Tavistock Publications, London. 1965, pp. 181. 30s.

THE papers contained in this fourth volume of Dr. Winnicott's collected works were delivered or published during the period 1950–1963, and were nearly all addressed to specific professional groups of doctors, mid-wives or social workers. The first section recapitulates for these publics the author's account of the events of the first years of life, beginning with the almost indescribable psychic unity of mother and infant for which he can find no word, but the other side of which is the infant's personal unintegration. We see the mother holding the child together by her sensitive adaptation to him, until he begins to integrate from the flux of experience a self, or ego, which can gradually adapt to her and to the world—which she presents to him in such a way that he can re-create it as "his" world. Instinctual development *à la* Freud and the achievement of the depressive position *à la* Klein are briefly touched on, but special emphasis is laid on another aspect of maturation, the rising tide of independence with its wavelike ebb and flow. Thus, paradoxically, the value of security is to give the child the courage to struggle against it. The child is shown continually breaking through the protecting and restricting barriers to find renewed security in a wider circle; from mother's arms to the family as a whole, from family to school and peer-group, etc., each group in turn functionally replacing and symbolically representing mother's arms and lap. The adolescent conflict between defiance and dependence is regarded mainly as an advanced phase of this struggle, which culminates in marriage—the final break with the family of origin, and the recreation of the family for another cycle.

This section of the book is also much concerned with the family, and the factors which make for integration and disintegration, with particular emphasis on the value for the parents individually and collectively of a living, healthy child who can neutralize the fears arising from the element of destructive phantasy in their sexuality. One chapter deals with the effect of depressed parents on the family, and two others on the effects of psychosis in parents or children.

Section II, which begins with a theoretical account of the field of child psychiatry, is mainly concerned with the ways in which the various helping professions can repair, at least to some extent, with the resources at their disposal, the damage which children have sustained through various types and degrees of environmental failure. No one knows better than Dr. Winnicott which concepts are actually most useful to those confronted with these difficult problems. His type of diagnosis, in terms of the amount of basic healthy experience which a child has had, and the point of development at which this failed or was interrupted, offers clear indications of the type of provision which he now requires or can use; its general adoption would ensure much more appropriate use by psychiatrists and others of the various kinds of facility available. In some ways Dr. Winnicott is sternly realistic. I experienced a certain shock on reading (pp. 138, 139) that the larger and more impersonal hostels correspond best to the *needs* of the more damaged child, that for him it is "good enough" to merge his identity with his peers without identification with the total home setting; and that "really ill" children can be happier and function better in a large dictatorial type of institution than in "better" homes. One would like more detailed discussion of these views, but no doubt they are a sound corrective to naive and omnipotent notions that society should at least try to make good all failures of early experience—a recognition that, as Spitz and others have claimed, the effects of severe early deprivation can be irreversible.

While interesting in content, I think the chapter on *Casework with Mentally Ill Children* increases, rather than diminishes, confusion as to the meaning of the term casework. Adopting Perlman's concept of a problem-solving process, the author states: "Casework is used to describe the total function of a particular agency in meeting that problem". Here I cannot agree. Casework now connotes a particular way of solving problems, with maximal participation by the client, and with due regard to the feelings and motivation of all concerned. In the period since the war many social agencies which used to perform their functions in other ways have decided that this way is more desirable, and have reformed their traditional practice by extensive, and often painful, retraining of staff who had been accustomed to solving problems *for* their clients rather than *with* them. The author's illustrative material consists mainly of his own "casework" with the families of child patients; I feel happier when he refers to this (as he sometimes does) as "management".

Space does not permit discussion of the author's very interesting ideas about the relations between maturity and democracy. The reader will have to approach these without introduction.

ELIZABETH E. IRVINE

Infantile Autism: The Syndrome and its Implications for a Neural Theory of Behaviour.

BERNARD RIMLAND. Appleton-Century-Crofts, New York, 1964, pp. 294. 40s.

THIS monograph, which received the first Century Psychology Series award for a distinguished manuscript in psychology, aims to present "a cohesive . . . theory of the nature and origins of (autism) . . . suggest a programme of research which will facilitate its evaluation", and secondarily "to present a complete and comprehensive view of knowledge about early infantile autism" and consider "implications of the theory which relate to the possible neural bases for intelligence and personality in both normal persons and certain abnormal conditions such as *idiot savant* and schizophrenia". Ambitious aims indeed, and it cannot be said that the author has been wholly successful in these. Nevertheless, there is much of interest and importance in the book.

There is a good description of the clinical manifestations of the condition and a useful review of most of the important papers on the topic up to 1962. Unfortunately in discussing some of the main issues, such as parental personality or aetiology, Rimland is sometimes misleadingly selective in whom and how he quotes. For example, the Creak and Ini study of families is quoted in support of the low rate of schizophrenia in the relatives, but their paper is not even mentioned as one in which the findings disagree with Rimland's view of parental personality. Donnelly's monograph on the families of autistic children is not listed in the references at all, and Anthony's paper (on the same study) is quoted in a different context but not with regard to parental personality. Rimland's dismissal of psychogenic factors in the aetiology of autism is well supported, and his argument here is for the most part convincing, but his language and logic are sometimes overlain with passion and some distortion. Similarly, his emphasis on the importance of differentiating early infantile autism from childhood schizophrenia is well argued with ample evidence in support. Unfortunately his delineation of the autistic syndrome and of schizophrenia is somewhat idiosyncratic in a few respects—for example, he restricts the diagnosis to cases of autism where the condition is manifest at birth but makes no mention that Kanner found that autism sometimes developed later in the first or second years of life.

Rimland's theory about the nature and aetiology of autism is set out in detail in the book and argued point by point in relation to evidence from clinical psychiatry, comparative psychology, neonatal physiology, neurophysiology and other scientific fields. He believes that the basic defect is cognitive—an inability to relate new stimuli to remembered experience—and that the defect is due to malfunction of the reticular system. Furthermore, he suggests that the autistic child has an inborn capacity for high intelligence which renders him abnormally susceptible to the effects of oxygen, so that (at least in many cases) relative hyperoxia causes damage to the reticular system at birth in the same way that retrolental fibroplasia is caused. A comprehensive and detailed theory such as Rimland's deserves serious and critical consideration from all concerned with the problems of autistic children. He has some important points to make—such as the suggestion that the primary defect is cognitive rather than affective, and in particular that the basic abnormality lies in the integration and comprehension of stimuli, especially non-tactile stimuli. There are some valuable research leads here, but unfortunately these are almost lost in a highly speculative theory supported by rather tenuous arguments based on sometimes selective pickings from the literature and an idiosyncratic view of the reticular system. For example, the theory that autistic children were endowed with unusually high intelligence which has gone awry, is based mainly on the occupations and personalities of the parents, together with the observation that the demographic characteristics are similar to Terman's group of highly gifted children (excess of first-born Jewish boys, etc.). He goes on to argue that between different species the more intelligent the animal, the longer the period of development of the nervous system. If there were similar interindividual differences, the exceptionally intelligent neonate would be in a developing state for an unusually long time. This would render him particularly vulnerable to the effects of oxygen in the atmosphere and hence lead to damage of the reticular system. Rimland is quite frank about the indiosyncratic nature of his view of the reticular system and honestly admits that neurophysiologists have been sceptical that the reticular system could function as he suggests. The reviewer shares this scepticism but agrees with Professor Kanner's hope (in the foreword) that readers will give the theoretical edifice respectful sober scrutiny before deciding what is of value and what is not.

M. Rutter

Behavioral Characteristics of Children Known to Psychiatric Out-Patient Clinics. Edgar F. Borgatta and David Fanshel. Child Welfare League of America Inc., New York, 1965, pp. 40.

This short monograph describes the authors' second study of the behaviour of children receiving psychiatric care in the United States. Unfortunately, the first study (Fanshel *et al.*, 1963), concerned with children in residential treatment centres, is published in a journal not available in this country.

The present research has two aims, not intimately related to each other. The first is to identify clusters of behaviour disorders commonly associated in children attending out-patient psychiatric clinics; the second is to determine whether adopted children are referred more commonly than non-adopted children and whether they differ from the latter in their behaviour.

Although behaviour disorders in populations of school children have been studied repeatedly, there is a dearth of published data about the characteristics of children referred for psychiatric care. Hewitt and Jenkins (1946) were the first to attempt a cluster analysis of behaviour disorders and to relate behaviour syndromes to environmental factors. Himmelweit (reported by Eysenck, 1953) performed a factor analysis on behaviour items recorded by Ackerson (1942) as occurring in 3294 referred children. Both groups of workers used case records, that is, data already abstracted to some extent and both arrived at meaningful dimensions of behaviour. In an unpublished study (Grant, 1957) direct ratings were made of mothers' descriptions of their children and the sex and age incidence of various behaviour disorders occurring in referred children was established. However, a factorial analysis failed to yield definite clusters of behaviour symptoms.

A great need remains for an objective and intensive study of the behavioural characteristics of children brought to psychiatric clinics as a basis for the classification of syndromes in child psychiatry. The present research does not really meet this need. Although the statistical analysis is sophisticated, the actual data have been collected with scant attention to the characteristics of the sample studied and to the reliability of the rating scales used.

One in every four agencies listed in the Directory of out-patient Psychiatric Clinics in the United States was approached, excluding, for reasons not stated, large health department clinics and also very small agencies. Only 30 out of 84 returned usable data. The authors do not indicate how the clinics decided which children to include in the study, nor who was to do the rating. No information is given about differences between clinics in the distribution of scores and only a cursory test of reliability was incorporated in the scales themselves.

The authors make no claim for the representativeness of their sample of 607 children and it is difficult to understand why, in that case, they did not elect to work in a single area or with a single agency and to devote more attention to the actual rating procedure and to the reliability of their scales.

The scales used are of necessity empirically devised and, like all such scales, they unavoidably reflect the predilections of their originators. They include the usual items describing aggressiveness, anxiety and neurotic behaviour, stealing and lying, but are unusual in having as many as six items for sexual activity and none at all for bed-wetting or soiling.

The statistical procedures used (principal components factor analysis) are sound with one surprising exception. Children were divided into four sex and age groups. "The computer program option utilized for analysis of these data would not run with small sample sizes relative to the number of variables used, and required a different set of statistical assumptions. We made the arbitrary decision, therefore, to add 13 randomly chosen 13-year-old girls to the 86 females in the 7 to 12 age group."

Twelve factors were extracted from the first analysis. A second order analysis was done and this still yielded as many as six factors: acting-out behaviour; tension-anxiety and infantilism; over-cleanliness and sex inhibition; lack of affection; learning difficulties; liability and responsibility.

Children's scores on the twelve factors were correlated with overall ratings of "social-psychological competence", race, socio-economic status, sex and age.

Among 2,281 active cases attending 24 different agencies 5·5 per cent were unrelated adoptions, compared with an estimate of 1 per cent for the general child population of the United States. The authors suggest that this increased referral rate can to some extent be accounted for by a greater awareness on the part of adoptive parents of the availability of services. Adoptive parents tend to be in the middle income groups and they have, inevitably, already had help from an agency. Adopted children were younger than the non-adopted and they were more often girls. They scored higher on defiance, and lower on overcleanliness, sex inhibition and responsibility.

The first part of this monograph describes a major research undertaking. The minor, second part, however, comparing adopted with non-adopted clinic attenders, is the more interesting.

S. Wolff

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Frustration and Conflict. Aubrey J. Yates. Methuen, London, 1962, pp. 236, 28s.

Frustration and conflict are household words in the vast vocabulary used to describe subjective states of feeling and the experiences of others. Until the advent of psycho-analysis these terms had no firm basis in psychological science, nor did they feature prominently in theories explaining the variety and diversity of human action. Experimental psychologists, to whom this book is primarily addressed, became interested in these concepts only slowly: Pavlov's work on discriminative conflict and behaviour pathology being the definitive experiments for a long time—too long.

Dr. Yates states at the outset that his book is primarily concerned with experimental work which has been done over the past thirty years on both animal and human subjects. It is a compendium, rather than a critical review monograph. The book includes a lengthy and thorough review of experimental studies on response-fixation, aggression, regression, anxiety and choice behaviour. Except for the first of these topics—response fixation à la N. R. F. Maier and his associates—they continue to be fields of intensive ongoing research. It is therefore inevitable that since this book was published there have been additional substantial contributions to the literature as well as major reformulations of theory (e.g. Miller's re-analysis of approach—avoidance conflict). But the reader who is mainly interested in understanding how experimental psychologists have approached and pursued the analysis of conflict and its related topic, frustration, may not be too troubled by this.

More worrying is the emphasis assigned to the different aspects when discussing the experimental work. Sixty pages are allocated to work on the distinction between motivation-instigated and frustration-instigated behaviour, the latter being considered as the basis of the neuroses. Yet Maier's views on the origins of neurotic behaviour and its intractability to modification by methods of persuasion and conditioning has not on the whole been favourably received. The experimental basis of the theory has often been challenged. It has been argued that the advantages of using an experimental approach to the problems of abnormal behaviour in humans, namely, through the identification of a basic set of variables whose interactions produce the phenomenon of persistent maladaptive behaviour, have been confounded by the complexity of the behavioural situation and the research technique used by Maier and his associates. It has also been argued that Maier's position stems from a misunderstanding of orthodox learning theory (see the recent discussion between Maier and Mowrer in *Psychological Record*, 1963) so that his experiments do not offer a genuine alternative to theoretical formulations in terms of the differential effects of reward and punishment.

The chapters on 'frustration and aggression' and on 'frustration and regression' which follow are more rewarding. The experimental work reviewed seeks to explicate concepts derived from clinical observation rather than to test highly general theories of human behaviour. The results of some of these studies, notably those of Barker, Dembo and Lewin, have become classics. Dr. Yates gives an excellent account of these studies and relates them to later work on frustration and the primitivization of behaviour. The semi-final chapter surveys some of the theories of experimental conflict. Included are brief statements of Luria's pioneering work (1932) on the use of hypnosis as a method of inducing conflict, Lewin's field force analysis which yielded the categories of approach-approach, approach-avoidance and avoidance-avoidance conflict, and Miller's stimulus-response, drive reduction reinforcement analysis of Lewin's conflict modes. But there are major omissions from this list: Pavlov, Skinner, Berlyne, Tinbergen.

The final chapter on "Frustration, Conflict, Learning Theory and Personality" reviews some recent developments, notably the work of Amsel and his students on frustration as a drive and of Atkinson's work on the relation between fantasy and the achievement motive. Yates believes that such different approaches can be reconciled in terms of modified Hullian formulations and equations. He summarizes his position as follows: "approach-avoidance conflict may result from the clash between anticipatory anxiety on the one hand, and anticipatory frustration summating with anticipatory reward on the other". Whether this attempt at reconciling different viewpoints and integrating different kind of research interests is successful remains to be seen—though it is doubtful. As Hilgard pointed out some time ago, present-day trends are in the opposite direction: the intensification of research, which is a hallmark of our time, leads to theoretical formulations which serve primarily to order data from increasingly narrow fields. A synthesis like that proposed by Yates has its place and ultimately must emerge but at present the prognosis is poor and the challenge remains.

H. M. B. Hurwitz

The Child who Does Not Talk. Edited by C. Renfrew and K. Murphy. Clinics in developmental medicine no. 13. The Spastics Society Medical Education and Information Unit. Heinemann, London, 1964, 30s.

The study of the child who does not talk is still in an embryonic state. So little is known and what is known by workers in different fields is so little shared. Paediatricians in particular are almost wholly ignorant of this problem, yet communication by language is fundamental to normal human development. The foundations of this communication are laid in the first two or three years of life, when all children have access to welfare clinics, general practitioners and paediatricians.

However, the first step in dealing with ignorance is to recognize it. This book, which is the record of a meeting of a study group organized by the Spastics Society in Durham in 1963, brings together articles by people from very varied disciplines—linguists, phoneticians, paediatricians, teachers, psychologists, psychiatrists, speech therapists, otologists, medical officers of health as well as a dental surgeon and a plastic surgeon. The title of the book is narrower than its contents. There are sections, each containing several papers, on the development of language, and on the diagnosis and treatment of children with delayed speech. There are also sections on the language problems of children with mental defect, non-communicating children, and children with cerebral palsy, as well as a section on stammering.

The different approaches and the different problems of the linguist, speech therapist and paediatrician, to take three groups represented, are well illustrated. So too is the elementary state of our knowledge in any of these fields. Should language be described in terms of the phonemes—the broken-up speech sounds into which language can be divided—or in terms of nouns, pronouns, prepositions, etc., or as representing varying levels of conceptual awareness? And what is the relation of speech to gesture and between aural and visual language (speech and writing)? A fascinating paper by Abercrombie, a phonetician, shows how far we are even from finding a language to describe what language is.

The concept of "central deafness" evidently took up a good part of the discussion. Taylor's paper on the differential diagnosis of hearing disorders shows how we might differentiate between children with peripheral hearing loss and those whose language deficits appear to be due to malfunctioning in the brain stem and cortex. Ingram gives a useful working classification of children with speech disorders which is practical and descriptive, as it must be at present because of lack of detailed understanding. Those children whose peripheral hearing mechanism seems intact, yet who seem unable to comprehend speech or who seem unable to form their lips and speech mechanisms into the correct patterns and postures, are a challenge to all whose disciplines were represented at the study groups.

Throughout the book, there is an obvious plea for the earlier recognition of speech disorders in children. Here paediatricians, general practitioners, health visitors and clinic doctors are the most important people. Too many parents are still told "He'll be all right" not only by neighbours but by professional people whom they consult. Failure to develop speech has a profound effect on a child's world, and early diagnosis is essential if we are to learn how to deal with the condition before secondary disturbances occur. Yet when treatment is discussed we are again in a sea of hypotheses and subjective assessment. The papers by the speech therapists are mostly enthusiastic, but Ingram reminded the group that the effects of speech therapy have yet to be properly evaluated.

The papers as a whole make a plea not only for the early diagnosis of speech disorders but for more research into their development and that of normal speech. These will require co-operation amongst people from many different fields. In a few years time we may look back at this book and laugh at the elementary nature of many of its concepts. If we can, then the main purposes of the meeting will have been fulfilled and we shall have moved on from our present ignorance together.

S. YUDKIN

The Syndrome of Stuttering: Clinics in Developmental Medicine No. 17. GAVIN ANDREWS and MARY HARRIS with ROGER GARSIDE and DAVID KAY. The Spastics Society and Information Unit in Association with William Heinemann Medical Books Ltd., London, pp. 191. 40s.

ANDREWS and Harris describe a survey of stuttering in 11-year-old school children in Newcastle-on-Tyne. There is a summary of research on a wide range of theories and hypotheses concerning the syndrome of stuttering, a chapter on genetics, and a section on experiments in a type of therapy designated "syllable-timed speech".

The selection of subjects and detailed planning of the survey is admirably carried out. The investigation includes a direct assessment of the children's speech, psychiatric interview, tests of personality, intelligence, reading and laterality, as well as a history of the child's development. Mothers were assessed by interview and tests.

Analysis of the results by multiple regression and factor analysis revealed significant differences between the stuttering and control groups only in that the stutterers show developmental speech defects, have a family history of stuttering, social deprivation in the home (mother's poor ability to manage), and poor attainment on tests of intellectual ability. No differences in personality emerged between the groups.

The results are interesting. Most other reports are in agreement with the first two results, but the evidence of social deprivation and poor intelligence conflicts with some other findings despite the authors' plausible explanation of the discrepancies between their work and the literature. Although no personality differences emerged between the groups, this must be viewed within the context of the poor means of personality assessment at one's disposal, in psychiatric research in general.

The section on syllable-timed speech does not tell us from where this method derives. Thirty adults and five school survey children were treated. The result revealed improvement although lapses occurred. The authors emphasize the need to consider the secondary emotional problems.

The book is extremely well presented and makes a very useful contribution in a field where much has been written, but little of fundamentals has been, as yet, discovered. The authors show refreshing caution in their interpretation of their findings.

BERENICE KRIKLER

Social Work with Families. Edited by EILEEN YOUNGHUSBAND. George Allen and Unwin, 1965, pp. 187. 25s.

THIS book is the first of a series called "Readings in Social Work" which is being published for the National Institute for Social Work Training. The idea is to collect together, in handy and inexpensive volumes, valuable articles from British and American journals. Each series of articles will be focussed to a central theme and the focus of this publication is family interaction.

It would be unusual to get complete agreement about the choice of material for any kind of anthology; we all have our favourites. But one or two of the British contributors must have wished that it had not been quite such an early example of their writing which fitted best with this particular volume. There is an interesting contrast between the rather practical case descriptions of the British and the more theory-building process of the Americans.

In an excellent article Grace Coyle (U.S.A.) discusses the application of small groups theory to work with families, and Simon Olshansky (U.S.A.) writes about the reaction of parents to having a mentally defective child, where he challenges some cherished social work (and not only social work) concepts. "When the parent is asked to 'accept' mental deficiency . . . may suggest to the parent that he is expected to perceive his child from the point of view of the professional helper. This expectation may make him both resentful and resistant." This article is full of clinical wisdom and particularly stresses the amount of time parents need to understand, with their feelings, that they have a backward child.

Miss Goldberg (U.K.) has some hard words to say about social workers and criticizes some of the assumptions from which they work. A great number, however, do not work from the assumptions which Miss Goldberg demolishes. You "pays your money and takes your choice" where social workers are concerned. There are articles by Noel Hunnybun, Elizabeth Irvine, Pauline Shapiro and others in British social work.

For the informed reader who knows social work this collection gives a fair range of writing over the past ten years, but for anyone outside, or for new recruits, the very different standards and approaches to the subjects discussed could be most confusing. They may end up with a very odd idea of what social work is all about.

KAY MCDOUGALL

Mother and Blind Child. S. IMAMURA. American Foundation for the Blind, New York, 78 pp. 1.50.

THIS monograph describes an investigation into the mother-child relationship in blind and sighted children of pre-school age. Ten blind children and twelve children with normal vision were systematically observed on twenty separate occasions in their own homes. The particular time-sampling method used in this study was adopted from earlier, large-scale studies of normal children and is among the best procedures available at present.

The major findings include the following observations. The blind children were more dependent than the sighted children and displayed "higher rates of self-instigated behaviour towards their mothers". The greatest difference between the two groups of children was "in the category of succorance", with the blind children showing "far greater preference for succorance" than the control subjects. The blind children also exhibited more repetitive and monotonous acts. The behaviour of the mothers towards the children differed primarily in their methods of non-compliance; the mothers of the blind children tended to refuse or ignore unacceptable requests, whereas the other mothers relied almost totally on refusal.

The author attaches great significance to this difference in maternal techniques of non-compliance and is led to speculate, rather unconvincingly, on the motives underlying the tendency of the mothers of the blind children to ignore many of the children's requests. Maternal hostility and guilt are said to be involved in this behaviour. The most likely explanation for this difference is scarcely considered and results in an account of the mother-child relationship which may be completely misleading (and also unfortunate). Surely the fact that the blind children were considerably more demanding (26 self-instigated approaches to the mother in one hour vs. 11 for the control group) must have a bearing on the inclination of the mothers to ignore many of the requests for attention?

The study contains other weaknesses. The most awkward of these is the author's tendency to imply causal connections from correlational data. Although Dr. Imamura occasionally lapses into platitudes (e.g. "maternal contact plays an important part in the formation of the blind child's social adjustment") the monograph is, in the main, concise.

While it contains some useful observations about the rearing of blind children, the main interest of the monograph lies in its methodological contribution.

S. RACHMAN

The Psychology of Learning. R. GARRY. The Centre for Applied Research in Education Inc., Washington, D.C., 1963. viii + 111 pp.

THE book is written for the teacher, teacher-to-be, and administrator, rather than the professional psychologist. Most of it focusses on the variables that affect learning. It begins, very helpfully, with a number of principles drawn from stimulus-response, cognitive and personality theories, that have practical implications in the classroom. This is followed by a brief discussion of maturation, psychomotor and intellectual capacities, effect of family background, and a mixture of fact and supposition in relation to motivation and learning. The third section deals with such aspects of the learning task as perception, meaningfulness of material, and retention.

Chapter 4 is concerned with classroom procedures: the distribution of practice; rewards and punishments; and a useful summary of much relevant experimental evidence. The last chapter is mixed in content. Much of it deals with the personality of the teacher and its influence on the climate and morale of the classroom; also with the general sociopsychological factors at work affecting both teacher and pupil. There then follows the application of what has been discussed to the working out of a unit of study in science.

The book could be of value to those for whom it was intended. It is simply written, and provides a brief summary of relevant material. There are a few blemishes in what is provided. For example, a book published in 1963 should not leave its readers with the thought that I.Q. is now calculated from mental age (p. 14). But more serious are its omissions. A current publication on this subject should not ignore the recent work on cognitive development, for this is what sets the limits to the quality of learning and its transfer. One cannot teach higher mathematics to a pupil before his mental structures are adequate to the task, however strong his motivation, or favourable his family circumstances. Today's teacher needs to know something of the influences which are likely to be responsible for the development of the child's cognitive structures.

K. LOVELL

The Disorganized Personality. GEORGE W. KISKER. McGraw Hill, New York, 1964, pp. 631. 66s.

THE author, who is a chief psychologist at a State Hospital, wrote this book as a text for introductory courses in 'abnormal' psychology, and presumably for college students doing a first-degree courses. Its a coverage of conventional ideas about mental disorder is wide and nearly complete. Its 600 pages contain great deal of information, presented in bland and easily assimilated form. It lists hundreds of references, the illustrations are clear and interesting and Professor Kisker writes effusively and with confidence. Armed with his book, diligent students will come to feel that they know about disorganized personalities. Whether their knowledge will be of help to them is less certain. The intellectual level of the book is modest. The writing lacks crispness and precision; having failed to hit the nail squarely on the head the first time, the author then tries a second, third and fourth time with little better success. He does not teach students how to criticize and evaluate.

D. RUSSELL DAVIS

The Mentally Retarded Child, Identification, Acceptance and Curriculum. R. D. WILLEY and K. B. WAITE. C. C. Thomas, Springfield, Illinois. 1964, pp. 246. $7.50.

DESIGNED for "those adults who work or plan to work with mentally retarded children" this is a disappointing compilation of quotations from books and articles of very varying degrees of importance and gives the reviewer no confidence in recommending it to anyone. It is not clear enough for those who are not well acquainted with mentally retarded children, and it is not accurate enough for those who already have some experience, and wish to know more.

The first section on the concept of mental retardation, the characteristics of the mentally retarded child, and the causation of mental deficiency is quite unreliable and suggests lack of intimate knowledge of work among the subnormal. The piling of quotation upon quotation without any attempts to draw helpful conclusions from disjointed accounts of different views dazes the reader, but is mercifully brief.

The second part is a very summary treatment of education and curriculum in reading, writing and arithmetic, social studies and the arts, with a section on the severely subnormal. It represents an atomized view of education and training which is behind the times for the U.S.A., and would not be acceptable in Britain either in E.S.N. schools or in training centres for the S.S.N.

The last part on the mentally retarded child in the family and community sets out all the platitudes but would not be helpful to anyone wishing to counsel a parent or to urge the establishment of a programme: it is not human enough to be convincing.

J. LUMSDEN

J. child Psychol. Psychiat., 1965, Vol. 6, p. 139. Pergamon Press Ltd. Printed in Great Britain.

NOTICE

Symposium of the American Psychopathological Association will be held on 18th, 19th and 20th February, 1966, at the Park Sheraton Hotel, New York. The topic is: "Psychopathology of Mental Development".

For further information address: Dr. Fritz A. Freyhan, Secretary of the American Psychopathological Association, National Institute of Mental Health, c/o Saint Elizabeths Hospital, Washington, D.C. 20032.

The **Seventh International Congress of Psychotherapy** will be held in Wiesbaden, Germany, from the 21st to 25th August, 1967. The main theme of the Congress will be "Psychotherapy—Prevention and Rehabilitation". Enquiries to Herrn. Prof. Dr. W. Th. Winkler, Gütersloh/Westf. Hermann Simon Str. 7, Germany.

The **Sixth International Congress of Child Psychiatry** will be held in Edinburgh, Scotland' from the 24th to 29th July, 1966. The Congress has as its theme "Puberty and Adolescence". The age range extends to school leaving but not beyond. The four *Plenary Sessions* will have simultaneous translation in English, French and German. Those wishing to read papers (2,000 words) should forward 10-line summaries to Dr. Cyrille Koupernik, 57 Avenue Montaigne, Paris 8^{e}, France.

All enquiries regarding the Congress should be addressed to: The Organizing Secretary, Dr. James B. McWhinnie, Department of Psychological Medicine, Royal Hospital for Sick Children, Edinburgh 9, Scotland.

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A STUDY OF ADOLESCENT PSYCHIATRIC IN-PATIENTS AND THE OUTCOME SIX OR MORE YEARS LATER

II. THE FOLLOW-UP STUDY

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INTRODUCTION

THE 187 adolescent in-patients, described and analysed in Part I (Warren, 1965), were discharged from the Adolescent Unit to disparate circumstances and in varying states of psychiatric health. Their environments could not be predicted for long ahead. During the six or more years that ensued before follow-up they were maturing towards adulthood: to leave school, to start work, except for the few who had higher education, and for the boys of this group to be liable for National Service. Their homes might change as they grew up, or old home influences diminish. Some would marry and have children at a comparatively young age. These new influences could help towards stability, or new stresses or set-backs could come about.

To assess mental health over the years until the follow-up six or more years later, it was necessary to determine in measurable terms not only any further psychiatric illness but also the conduct of these patients; whether apparently law-abiding or with an antisocial record. Ideally, it would have been enlightening to have been able to assess the influences of their further environment on the outcome, to assess their work record, and social and sexual adjustment. However, as subsequent careers had again to be considered in retrospect, insufficient information was obtainable from comparatively short interviews and reports for these further facets to be determined. It would have required repeated observation over the years to gain this fuller knowledge.

RELIABILITY OF THE FINDINGS AT FOLLOW-UP

Of the 187 patients (107 boys, 80 girls) whose records were analysed up to the time of discharge from the Adolescent Unit, the records of 30 (13 boys, 17 girls) had to be discarded as follow-up could not be achieved. This left 157 patients (94 boys, 63 girls) who were considered to have been adequately followed up.

The records of the discarded 30 were examined to ensure that their loss did not lead to any ascertainable bias and that any conclusions reached for the remaining 157 were representative of the whole 187 patients. Comparisons showed that there were no significant differences between them in diagnostic category or syndrome type. There was a slightly higher proportion of girls than boys *not* followed up and these girls were among those older at admission. There were no significant differences in their levels of intelligence, EEG findings, any physical handicaps, their length of

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stay in hospital, or the grades of severity of illness at discharge. Those *not* followed up were more frequently among those given a good prognosis. In all, those *not* followed up appeared to contain a higher proportion of youngsters who were potentially mentally healthier.

DEGREE OF FOLLOW-UP ACCOMPLISHED

The follow-up examinations were undertaken by the author and a psychiatric social worker acting together. Whenever possible, a psychiatric examination of the patient was made, and a full account gathered from a near relative, of the patient's life since discharge, supplemented by reports from any agencies concerned with the patient. Sometimes because of distance or unavailability, these could only be partially accomplished. At other times correspondence, including a questionnaire, had to be used to obtain as much information as possible, where neither patient nor a relative could be interviewed. The degree of follow-up accomplished is given in Table 1.

TABLE 1. DEGREE OF FOLLOW-UP OBTAINED

	Boys	Girls	Total
Psychiatrist and P.S.W. interviewed patient	18	16	34
P.S.W. interviewed patient	4	2	6
Psychiatrist interviewed patient	3	6	9
Psychiatrist interviewed patient, P.S.W. interviewed near relative	10	6	16
P.S.W. interviewed near relative	35	18	53
Correspondence, questionnaire and/or reports only	24	15	39
Total followed up:	94	63	157

Most of the cases where follow-up was dependent on correspondence, questionnaire and reports only, were amongst those who lived furthest away. However, the varying degrees of follow-up were spread out fairly evenly between the sexes and amongst all diagnostic groups. They were also fairly evenly spread as between the various grades of severity of illness found at follow-up. A slight excess of severely ill patients amongst those not examined was accounted for by some who had become in-patients in mental hospitals. It was concluded that the data obtained from the less adequately followed up was sufficient for the findings on the whole 157 to be reported.

BASIC DATA ON THE 157 PATIENTS FOLLOWED-UP

These are given in Table 2 for Age Bands at admission, Sex and Diagnostic Categories. All the follow-up findings and any cross-relationships with pre-discharge data will be related to these figures and not to the original total of 187 patients, for which the pre-discharge data were analysed.

THE OUTCOME

The records at follow-up were examined and then categorized for any further psychiatric ill-health and any further antisocial record.*

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*The author, Dr. L. Stein and Mrs. J. E. M. Feldmar judged and graded them independently, and then reached agreement. The same method was used for all assessments dependent on a subjective judgement.

TABLE 2. BASIC DATA ON PATIENTS FOLLOWED UP

		Diagnostic categories					
		Neurotic disorders	Conduct disorders	Mixed neurotic and conduct disorders	Psychotic disorders	Others	Total
Age bands Younger: Under 14½ years at admission	Boys	19	4	22	3	1	49
	Girls	15	2	4	7	1	29
	Total	34	6	26	10	2	78
Older: Over 14½ years at admission	Boys	15	11	10	8	1	45
	Girls	19	1	8	5	1	34
	Total	34	12	18	13	2	79
Total	Boys	34	15	32	11	2	94
	Girls	34	3	12	12	2	63
	Total	68	18	44	23	4	157

Further psychiatric ill-health

This could have occurred at any time during the follow-up period. Many patients remained well after discharge; others showed ill-health early on in the follow-up period, perhaps the tail-end of the illness that led to admission; others continued to show varying degrees of ill-health throughout the follow-up period or, having become well, developed a similar or new form of illness. To cover all these possibilities the occurrence of further illness was categorized as follows:

(1) *Record of psychiatric illness during follow-up period* (*a*) *Severity;* (*b*) *Continuity.* This had to be assessed in retrospect from the information obtained at follow-up, and it was graded in broad and simple categories so as to make clear not only the severity of any further illness, but also when and how long it continued:

(a) Severity: Grade I. No psychiatric illness occurred. II. Mild illness requiring non-specialist or out-patient treatment, whether or not obtained. III. Serious illness requiring in-patient treatment, whether or not obtained. IV. Not known.

(b) Continuity: Grade I. None. II. Early on. III. Intermittent or late. IV. Continuous. V. Not known.

Table 3 shows that 22 (32 per cent) of those with *Neurotic disorders* had serious further illness, of which about one half each was intermittent or continuous. Similarly, 11 (27 per cent) of those known with *Mixed neurotic and conduct disorders* had serious further illness, again equally divided between intermittent and continuous. Three (21 per cent) of those with *Conduct disorders* were categorized as having had 'serious illness', i.e. they received treatment in a psychiatric hospital, but again for delinquent behaviour for which psychiatric treatment was again tried. However, in the *Psychotic disorders* and *Others* groups, 24 (89 per cent) had serious illness during the follow-up period, and in three-quarters it was continuous. There were no significant sex nor age differences.

TABLE 3. RECORD OF PSYCHIATRIC ILLNESS DURING FOLLOW-UP PERIOD

Diagnostic categories	(a) Severity				(b) Continuity				Total
	None	Mild*	Serious	Not known	Early on*	Intermittent or later	Continuous	Not known	
Neurotic disorders	33	13	22	–	11	13	11	–	68
Conduct disorders	8	3	3	4	2	4	–	4	18
Mixed neurotic and conduct disorders	21	9	11	3	9	5	5	4	44
Psychotic disorders	1	–	21	1	4	3	15	–	23
Others	–	1	3	–	1	2	1	–	4
Boys	36	20	31	7	15	21	17	5	94
Girls	27	6	29	1	12	6	15	3	63
Younger	37	13	23	5	13	9	14	7	78
Older	26	13	27	3	14	18	18	1	79
Total	63	26	60	8	27	27	32	8	157

*Nearly all illness categorized as 'mild' occurred 'early on', the tail-end of the illness that had led to admission.

Sex difference, Severity $\chi^2 = 4{\cdot}83$; *df.* = 2; N.S. Continuity $\chi^2 = 3{\cdot}03$; *df.* = 2; N.S.
Age band difference, Severity $\chi^2 = 5{\cdot}13$; *df.* = 2; N.S. Continuity $\chi^2 = 0{\cdot}39$; *df.* = 2; N.S.

TABLE 4. GRADES OF SEVERITY OF PSYCHIATRIC ILLNESS AT FOLLOW-UP

	Neurotic disorders				Conduct disorders				Mixed neurotic and conduct disorders				Psychotic disorders				Others				Total			
Grades of severity	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Boys	13	9	8	4	9	3	2	X	20	6	5	1	1	2	1	7	–	–	2	–	43	20	18	12+X
Girls	12	15	6	1	2	1	–	–	9	–	2	1	3	–	1	8	1	–	–	1	27	16	9	11
Total	25	24	14	5	11	4	2	X	29	6	7	2	4	2	2	15	1	–	2	1	70	36	27	23+X

X Not known 1 boy.

Key: Illness grades:
1. No psychiatric treatment considered necessary.
2. Psychiatrically ill enough to require treatment from a non-specialist (General practitioner).
3. Psychiatrically ill enough to require treatment from a hospital out-patient department.
4. Psychiatrically ill enough to require treatment in hospital.

The record of any psychiatric treatment obtained during the follow-up period, whether child guidance, out-patient or in-patient hospital treatment, closely followed the incidence of illness, although not all patients in each category had treatment, even though ill.

(2) *How ill at follow-up*. Each patient was again graded at follow-up, using the same criteria as on admission, and at discharge from the Adolescent Unit (see Table 4). The criteria were used whether or not the patient was under treatment; a few who required it had refused. Some patients who were categorized Grade 1 had some minor symptoms or appeared to have personality defects, but they were considered to be within the normal range. They were similar to those showing when in hospital and now did not require treatment.

The grades of illness found at follow-up (Table 4) compared with Table 7 (Part I, Warren, 1965), giving the situation at discharge from hospital, clearly show a further shift towards normality in all groups except in the *Psychotic disorders* and *Others* groups. (The cross-relationships between them are further explored later.)

These results of the whole groups are not enlightening on the further outcome in individual patients admitted with differing syndromes which are generally considered each to carry their own likely clinical course and prognosis. Two sub-groups were outstanding amongst those categorized as *Neurotic* and *Mixed neurotic and conduct disorders*. There were 15 patients who could be classified as having *Obsessive compulsive states*: 9 of these had begun their illness before the age of 10 years; the other 6 were of recent onset at admission. Of these 15 patients, at follow-up, 1 had been leucotomized, 1 was in hospital with obsessional neurosis, and 1 should have been in hospital but refused treatment. Two more were seriously handicapped by obsessional symptoms and 4 others somewhat handicapped. Four had a tendency to mild obsessional symptoms under stress, but were otherwise well. Two were quite normal. Those who did best tended to have had the shortest history at admission. Two other patients during admission had markedly 'obsessional' personalities; at follow-up they still were handicapped by the same personality characteristics.

There were also 16 patients admitted with so-called 'school phobia'. They had been treated with varying success at the time, and at follow-up 6 were quite well. Three subsequently had other kinds of neurotic difficulties, but appeared to be settling; 3 others lived rather limited lives because of minor phobic difficulties. Four were more seriously handicapped by phobic states. Five of these 'school phobias' had at the time shown other phobic symptoms and to these can be added 3 other phobic patients but without school phobia. Of these 8 phobic patients at follow-up, 1 had been leucotomized, 1 was in hospital and another should have been, 2 more were seriously handicapped, and 3 mildly handicapped, by phobic symptoms.

On the whole, the majority of the other patients in the *Neurotic disorders* and *Mixed neurotic and conduct disorders* groups tended, with some exceptions, to do well by follow-up, as far as further illness was concerned. They were those who had shown mixed symptoms, anxiety, reactive depression, hysterical features or childish symptoms; and accounted for the bulk of the favourable results. A number of them were still not living full lives socially, or were in jobs not up to their intellectual capacity, but these facets could not be measured.

Further antisocial record

Antisocial behaviour was again excluded from the assessment of any psychiatric ill-health during the follow-up period, and from the determination of the degree of illness showing at follow-up. However, the situation for the recording and assessment of antisocial behaviour was different from that in the pre-admission period. It was no longer possible to obtain from a relative a reasonably reliable account of the patient's misconduct; such had often originally formed the substance of the complaint, and the reason for treatment having been sought. After discharge, the patient was older, more independent, and any antisocial behaviour that did not lead to a Court charge was likely to remain hidden. The term 'conduct disorder' was no longer appropriate for a late teenager or young adult.

The record of antisocial behaviour occurring during the follow-up period was therefore confined to that which led to Court charges, nearly all of which occurred in those originally admitted with *Conduct disorders* or *Mixed neurotic and conduct disorders*.

It was categorized for (a) Severity and (b) Continuity, i.e.

(a) Severity (1) No antisocial record. (2) Court appearance or probation only. (3) Approved School or Training Home record. (4) Borstal, Prison or Detention Centre record. In each individual several grades might apply but only the severest was recorded.

(b) Continuity of antisocial behaviour depended on opportunity, and those in penal institutions presumably lacked it during their sentence. This limited the use of the term 'continuity' which was therefore taken to include the length of time in these places. It was useful in that it distinguished between those who had only a Court appearance early on, or a period of probation and then settled down, from those who had intermittent Court appearances with new sentences throughout the follow-up period, or were continually serving one or more sentences. It was graded as: (1) None. (2) Early only. (3) Intermittent. (4) Continuous. (See Table 5.)

Table 5 shows that further *serious* antisocial conduct was confined almost entirely to those in the *Conduct disorders* and *Mixed neurotic and conduct disorders* groups; 7 (39 per cent) of the former and 14 (36 per cent) known cases of the latter. (Only 2 neurotics and 1 psychotic had an antisocial record later on.) Of those with 'Court Appearances or Probation only' nearly all in fact occurred early on. The more serious sentences were amongst those whose antisocial conduct was intermittent, or continuous. Very few girls had a post-discharge antisocial record, but slightly more of the younger rather than the older age band (combining boys and girls) had a post-discharge antisocial record. (The cross-relationships with a pre-hospital delinquent history are given later.)

'Composite' outcome

This combined the post-discharge record of psychiatric ill-health with any antisocial record. Thus some patients were free from both; others had one or the other; a very few had both. To cover all the alternatives the *severity* of *psychiatric illness* at follow-up was combined with the *severity* of *antisocial record* during the follow-up (Table 6). The severity of psychiatric illness during the follow-up period and the record of psychiatric treatment were so closely related that it made little difference

TABLE 5. FURTHER ANTISOCIAL RECORD

Diagnostic categories	(a) Severity None	Court app. or probation	Appr. sch. or training centre	Prison, borstal, det. centre	Not known	(b) Continuity Early on	Inter-mittent	Con-tinuous	Not known	Total
Neurotic disorders	64	2	–	2	–	2	–	2	–	68
Conduct disorders	7	4^y	1	6^y	–	1	5^x	5	–	18
Mixed neurotic and conduct disorders	26	3^y	5^x	[illegible]	1	5^x	8^x	4	1	44
Psychotic disorders	22	–	–	1^y	–	–	1^y	–	–	23
Others	4	–	–	–	–	–	–	–	–	4
Total	123	9	6	18	1	8	14	11	1	157

Key: All figures refer to boys except that:
^{x} Indicates 2 girls included.
^{y} Indicates 1 girl included.

which alternative was used. Cases were placed in the severest category which applied.

TABLE 6. GRADES OF COMPOSITE OUTCOME

Diagnostic categories		A	B	C	D	Total	A and B combined % of total
Neurotic disorders	T	35	11	11	11	68	67·6
	M	12	4	7	11	34	47·1
	F	23	7	4	–	34	88·2
Conduct disorders	T	6	2	4	6	18	44·4
	M	5	1	3	6	15	40·0
	F	1	1	1	–	3	33·3
Mixed neurotic and conduct disorders	T	15	9	9	11	44	54·5
	M	11	8	5	8	32	59·4
	F	4	1	4	3	12	41·7
Psychotic disorders	T	4	2	2	15	23	26·1
	M	1	2	1	7	11	27·3
	F	3	–	1	8	12	25·0
Others	T	1	–	2	1	4	25·0
	M	–	–	2	–	2	—
	F	1	–	–	1	2	50·0
Total	T	61	24	28	44	157	54·1
	M	29	15	18	32	94	46·8
	F	32	9	10	12	63	65·1

T = Total, M = Male, F = Female

Sex difference, totals, Grade A + B vs. C + D	$\chi^2 = 4{\cdot}36$; *df.* = 1; $P < 0{\cdot}05$
Diagnostic categories differences, sexes combined, between Grades A + B vs. C + D	$\chi^2 = 14{\cdot}34$; *df.* = 3; $P < 0{\cdot}01$
Sex difference, Neurotic disorders	$\chi^2 = 11{\cdot}36$; *df.* = 1; $P < 0{\cdot}01$
Sex difference, Conduct disorders	$\chi^2 = 0{\cdot}45$; *df.* = 1; N.S.
Sex difference, Mixed neurotic and conduct disorders	$\chi^2 = 0{\cdot}51$; *df.* = 1; N.S.
Sex difference, Psychotics and Others (Combined)	$\chi^2 = 0{\cdot}01$; *df.* = 1; N.S.

Key:

Composite outcome	= Severity of illness at follow-up	and/or	Severity of antisocial record during follow-up
Grade A	No psychiatric treatment considered necessary	and	No antisocial record
Grade B	Requiring treatment from a non-specialist	and/or	Court appearance or probation only
Grade C	Requiring hospital out-patient treatment	and/or	Approved school or training home record
Grade D	Requiring hospital in-patient treatment	and/or	Borstal, prison or detention centre record

Table 6 gives the 'Composite' outcome in relation to sex and diagnostic categories. It shows that as a whole girls did significantly better than boys. Forty-one (65 per cent) of the girls were in grades A or B, as opposed to 44 (47 per cent) of the boys

($< 0{\cdot}05$). Taking the sexes together, by diagnostic category, there were in grades A or B 46 (68 per cent) of the *Neurotic disorders* group, 24 (54 per cent) of the *Mixed neurotic and conduct disorders* group, 18 (44 per cent) of the *Conduct disorders*, and 7 (26 per cent) of *Psychotic disorders* and *Others*. These differences were significant ($P < 0{\cdot}01$).

Again, considering the diagnostic groups in turn, in the *Neurotic disorders* group 88 per cent of girls were in grades A or B as opposed to 47 per cent of boys. This was a highly significant difference ($P < 0{\cdot}01$). In the other diagnostic groups, the differences between the proportions of the sexes who did well or badly were not significant. It seems that the high success rate at follow-up of the girls in the 'Neurotic' group accounted for the other significant findings.

Similarity or otherwise of any further illness or antisocial record during follow-up period

During the follow-up period, any further psychiatric illness or antisocial behaviour might be substantially the same as that which brought the patient into the Adolescent Unit, or become substantially different. These patients, except for those who were psychotic, had often shown very mixed clinical pictures and were therefore often difficult to classify while in hospital. The fact of growing up might itself affect the form of the syndrome, if it continued, while symptoms typical of a younger age-group might well fade out. The unfolding of new symptoms might make a change of diagnosis necessary at follow-up. However, there was a possibility that having recovered from the original illness, the patient developed a new and different illness or, having been free from conduct disorders, later became antisocial. Any further illness or antisocial record occurring during the follow-up period was therefore categorized as follows:

S. Same or similar

D. Mainly or completely different.

The development of a "different illness" most frequently came about amongst those admitted with *Neurotic disorders* or *Mixed neurotic and conduct disorders*. On the other hand, it remained the 'same' or 'similar' amongst those admitted with *Conduct disorders* and none were different. Amongst those admitted with *Psychotic* or *Other* disorders, very few were different.

Excluding those who had 'illness' 'early only', after discharge, 26 patients later needed a different diagnosis. Of 12 originally categorized as *Neurotic disorders*, 5 later became psychotic, i.e. 4 schizophrenic and 1 manic depressive; 2 unexpectedly became antisocial; they may, in retrospect, have shown prodromata, but no such diagnosis could originally have been applied. Five with a childhood type syndrome developed definite and chronic adult type neurotic conditions. Of 11 originally categorized as *Mixed neurotic and conduct disorders*, 1 was later diagnosed as having epilepsy and 2 developed well marked neurotic conditions: 7 became more definitely antisocial and were later diagnosed as having a "psychopathic personality"; 1 turned out to be a homosexual. One of the *Psychotic disorders* originally diagnosed as having mania later became a definite schizophrenic; 2 admitted with schizo-affective episodes became chronic schizophrenics. In all groups there were no sex differences in the numbers needing mainly or completely different diagnoses at follow-up.

One of the *Neurotic disorders* group who became antisocial was later labelled else-

TABLE 7. SIMILARITY OR OTHERWISE OF ILLNESS AND/OR ANTISOCIAL RECORD DURING FOLLOW-UP PERIOD (NEUROTIC DISORDERS, CONDUCT DISORDERS AND MIXED NEUROTIC AND CONDUCT DISORDERS GROUPS ONLY)

			Early only		Later		
		No illness	Same	Different	Same	Different	Total
Diagnostic categories	Neurotic disorders	35	7	2	12	12	68
	Conduct disorders	6	1	1	10	–	18
	Mixed neurotic and conduct disorders	15	8	2	8	11	44
	Total	56	16	5	30	23	130
Younger	Neurotic disorders	19	6	1	4	4	34
	Conduct disorders	1	1	–	4	–	6
	Mixed neurotic and conduct disorders	11	4	1	2	8	26
	Total	31	11	2	10	12	66
Older	Neurotic disorders	16	1	1	8	8	34
	Conduct disorders	5	–	1	6	–	12
	Mixed neurotic and conduct disorders	4	4	1	6	3	18
	Total	25	5	3	20	11	64

Differences between 'Same' and 'Different' illness/antisocial record:

Early only (a) As between diagnostic categories (ages combined) $\chi^2 = 0{\cdot}83$; *df.* $= 2$; N.S.

(b) Younger vs. Older (diagnostic categories combined) $\chi^2 = 0{\cdot}39$; *df.* $= 1$; N.S.

Later (a) As between diagnostic categories (ages combined) $\chi^2 = 9{\cdot}71$; *df.* $= 2$; $P < 0{\cdot}01$.

(b) Younger vs. Older (diagnostic categories combined) $\chi^2 = 2{\cdot}53$; *df.* $= 1$; N.S.

where a psychopath, and so were 6 among the *Conduct disorders* group. These 6 with conduct disorders were not considered, however, to have acquired a new condition, but only a new name for what was the same condition.

Table 7 takes the *Neurotic disorders*, *Conduct disorders* and *Mixed neurotic and conduct disorders* groups and excludes the *Psychotic disorders* and *Others* groups as nearly all of the latter had the same or similar illness. It divides any subsequent illness or antisocial record into 'early only', and 'later', including 'intermittent', 'late' or 'continuous' illness combined. The sexes are combined. It shows that (1) there were no significant differences in similarity or difference of later illness as between diagnostic categories in the 'early only' group. Among the younger patients 'early only' further illness was nearly always similar, whereas among older patients the 'early only' further illness was somewhat more often, but not significantly, different. (2) Among those with 'later' further illness there was again no significant difference as between the 'younger' and 'older' age bands in this respect. Between diagnostic categories, however, there were significant differences ($P < 0{\cdot}01$): in the *Neurotic disorders* group the ratio between 'similar' and 'different' illness was consistently equal, while in the *Conduct disorders* group, even if some subsequently received psychiatric treatment in hospital, or were later diagnosed as psychopaths, the illness was always similar.

Finally, in the *Mixed neurotic and conduct disorders* group it was more commonly different among the younger patients. It seems that categorization as *Neurotic* or *Mixed neurotic and conduct disorders* leaves uncertainties in many patients that only their further history may resolve.

CROSS-RELATIONSHIPS

In view of the uncertainties in the long term outcome of psychiatric illness or disturbed behaviour occurring in adolescence, the case material was further examined for factors that might be significant in relation to the outcome six or more years later, and in a search for possible prognostic pointers.

PERSONAL HISTORIES

History of physical ill-health prior to admission in relation to composite outcome. There was a slight, but not significant, shift towards a poor composite outcome at follow-up amongst boys who had had a moderately severe history of physical illness prior to admission, but not amongst girls.

Symptoms of emotional disturbance aged one to five years, and psychiatric disturbance after the age of five years but prior to the present illness, in relation to the composite outcome. Apart from those patients in the 'Psychotic disorders' and 'Other' groups who had severe symptoms in early childhood and who all had a composite outcome at follow-up which was in Grade C or D, no trends could be demonstrated.

Record of conduct disorders occurring at any time prior to admission, in relation to the composite outcome: Again no significant trends could be shown.

Severity of pre-admission delinquency in relation to severity of post-discharge antisocial record.

TABLE 8. PRE-ADMISSION DELINQUENCY RECORD (SEVERITY) BY POST-DISCHARGE DELINQUENCY RECORD (SEVERITY) FOR DIAGNOSTIC CATEGORIES "CONDUCT DISORDERS" AND "MIXED NEUROTIC AND CONDUCT DISORDERS" ONLY

			Pre-admission delinquency				
			I	II	III	IV	Total
Post-discharge delinquency	I	Boys	13	11	1	–	25
		Girls	4	3	1	–	8
	II	Boys	2	3	–	–	5
		Girls	1	1	–	–	2
	III	Boys	–	2	1	–	3
		Girls	–	3	–	–	3
	IV	Boys	4	5	4	1	14
		Girls	1	–	–	–	1
	Not known	Boys	–	–	–	–	–
		Girls	1	–	–	–	1
	Total	Boys	19	21	6	1	47
		Girls	7	7	1	–	15

Grade I vs. Grades II, III and IV (Boys only). $\chi^2 = 2{\cdot}03$; *df.* = 1; N.S.

Key: Grade I No antisocial record.
II Court appearances or probation only.
III Approved school or training home record.
IV Borstal, prison, detention centre record.

TABLE 9. SEVERITY OF PSYCHIATRIC ILLNESS AT DISCHARGE IN RELATION TO SEVERITY OF ILLNESS AT FOLLOW-UP: "NEUROTIC DISORDERS" AND "MIXED NEUROTIC AND CONDUCT DISORDERS" GROUPS ONLY

		Illness grades at discharge				
Neurotic disorders		1	2	3	4	Total
Illness grades at follow-up	1	11	9	4	1	25
	2	3	13	8	–	24
	3	2	5	6	1	14
	4	1	1	1	2	5
	Total	17	28	19	4	68

Relation between illness grades at discharge and follow-up. $\chi^2 = 10{\cdot}72$; *df.* $= 4$; $P < 0{\cdot}05$*

		Illness grades at discharge				
Mixed neurotic and conduct disorders		1	2	3	4	Total
Illness grades at follow-up	1	9	14	6	–	29
	2	1	2	3	–	6
	3	1	3	3	–	7
	4	–	2	–	–	2
	Total	11	21	12	–	44

Relation between illness grades at discharge and follow-up. $\chi^2 = 3{\cdot}37$; *df.* $= 4$; N.S.*

Difference between Neurotic disorders and Mixed neurotic and conduct disorders in illness grades at discharge. $\chi^2 = 2{\cdot}85$; *df.* $= 3$; N.S.

Difference between Neurotic disorders and Mixed neurotic and conduct disorders in illness grades at follow-up. $\chi^2 = 10{\cdot}03$; *df.* $= 3$; $P < 0{\cdot}02$.

Key: Illness grades:
1. No psychiatric treatment considered necessary.
2. Psychiatrically ill enough to require treatment from a non-specialist (General practitioner).
3. Psychiatrically ill enough to require treatment from a hospital out-patient department.
4. Psychiatrically ill enough to require treatment in hospital.

*Rows and columns 3 and 4 were combined, because of the small frequencies in row and column 4

combined, it will be seen (Table 10) that the younger patients as a whole (below $14\frac{1}{2}$ years at admission) did significantly better than the older (above $14\frac{1}{2}$ years at admission) ($P < 0{\cdot}05$).

Prognoses made at discharge in relation to the occurrence of further illness and/or antisocial record during the follow-up period: Comparison of the prognoses made at discharge and the subsequent record of illness or antisocial behaviour showed considerable disparities. (Comparison of the prognoses made at discharge with the composite outcome showed similar patterns.)

Table 11 shows that there were no significant relationships in any diagnostic category between the further illness, antisocial record and the prognosis made at discharge. However, among *Neurotic disorders* the prognoses made at discharge were as a whole too pessimistic and the outlook was better than expected in a number of patients and particularly among the girls. On the other hand, a few boys and

TABLE 10. SEVERITY OF ILLNESS AT FOLLOW-UP BY AGE BAND: NEUROTIC DISORDERS AND MIXED NEUROTIC AND CONDUCT DISORDERS GROUPS COMBINED

		Age bands		
		Below 14½ years	Above 14½ years	Total
Illness grades at follow-up	1 and 2	50	34	84
	3 and 4	10	18	28
	Total	60	52	112

Difference between Younger and Older age bands. $\chi^2 = 4{\cdot}79$; *df.* = 1; $P < 0{\cdot}05$.
Illness grades: See Table 9.

TABLE 11. PROGNOSIS AT DISCHARGE IN RELATION TO FURTHER ILL/ANTISOCIAL RECORD

		None	Early only	Contin. intermit.	Total
Neurotic disorders Prognosis at discharge	Good	6	–	4	10
	Good qualified	7	2	8	17
	Neutral	10	4	8	22
	Bad qualified	3	1	3	7
	Bad	9	2	1	12
	Total	35	9	24	68

$\chi^2 = 7{\cdot}23$; *df.* = 8; N.S.

		None	Early only	Contin. intermit.	Total
Conduct disorders	Good	2	1	–	3
	Good qualified	1	–	3	4
	Neutral	3	1	5	9
	Bad qualified	–	–	2	2
	Bad	–	–	–	–
	Total	6	2	10	18

$\chi^2 = 2{\cdot}06$; *df.* = 2; N.S.

		None	Early only	Contin. intermit.	Total
Mixed neurotic and conduct disorders	Good	1	1	–	2
	Good qualified	8	4	8	20
	Neutral	2	2	3	7
	Bad qualified	3	2	4	9
	Bad	1	1	4	6
	Total	15	10	19	44

$\chi^2 = 1{\cdot}35$; *df.* = 4; N.S.

		None	Early only	Contin. intermit.	Total
Psychotic disorders and Others	Good	–	1	–	1
	Good qualified	–	–	3	3
	Neutral	1	–	5	6
	Bad qualified	1	–	2	3
	Bad	1	–	13	14
	Total	3	1	23	27

$\chi^2 = 0{\cdot}47$; *df.* = 2; N.S.

occasionally a girl, given a good, qualified, or neutral prognosis, had a later history of mainly or completely different illness or antisocial record to that which brought them into hospital. In the *Conduct disorders* group the numbers were too small for conclusions to be drawn. A subsequent antisocial record when it occurred was always, except in one boy, similar. For the *Mixed neurotic and conduct disorders* group, the proportions of good or bad prognoses made were nearer right for the whole group but not necessarily so for the right individuals, and the group as a whole was found to have done somewhat less well than the *Neurotic group*. Again, a higher proportion had a different illness or antisocial record, if it occurred, but this was not unexpected as a mixed syndrome was likely to develop new features and so require a new diagnosis. In the *Psychotic disorders* and *Others* groups, if a bad prognosis was given at discharge it tended to be borne out, but a good or non-committal prognosis given appeared to be very uncertain.

Recommendations for immediate disposal made at discharge (and whether carried out or not) in relation to composite outcome: In view of the importance attached at the time of discharge to arrangements for suitable social placements and when necessary for appropriate psychiatric supervision and treatment, it is of interest to know how far the carrying out of these recommendations or otherwise had any effect on the outcome at follow-up. For this purpose, recommendations made at discharge were grouped as Social (*P.Q.T.*) and Medical (*R.S.*) and Mixed ($P + R$ or $Q + R$)—(see Warren, 1965).

Table 12 shows that for all diagnostic categories combined, there were more social recommendations made for younger patients and especially for boys. For all patients, those with no recommendations made did better than those where some recommendation was made, but the numbers of the former were small. In general, no significant relationships were found between the recommendations made and the outcome. In any case, this ignores whether the recommendations were carried out, and also the separate diagnostic categories. If these are considered for the different diagnostic groups, in the *Psychotic disorders* and *Others* groups, no conclusions can be drawn as the majority had a bad outcome. For all other diagnostic groups, both amongst those patients where social or medical recommendations had been made, those who carried them out completely or partially did no better than those who did not carry them out.

To account for these findings, self-righting factors need to be kept in mind. For instance, those who found themselves well after discharge were less likely to carry out recommendations (especially for out-patient follow-up), while those who continued to be ill and in need of treatment were the more likely to do so. However, if this was so it did not alter the fact that whether or not the recommendations were carried out made little difference to the composite outcome.

DISCUSSION

The long-term outcome of the many psychiatric syndromes of childhood and adolescence is in general little known as yet, and so are the relationships there may be between them and psychiatric ill-health later on. There have so far been a few useful long-term follow-up studies of children who attended child guidance clinics, notably those of O'Neal *et al.* (1958a and b; 1960), and Robins and O'Neal (1953, 1958); but in such studies the children concerned were grouped under very broad

TABLE 12. RECOMMENDATIONS MADE AT DISCHARGE IN RELATION TO COMPOSITE OUTCOME

Boys younger			Recommendations made				Boys older	Recommendations made			
		None	Social	Medical	Mixed	Total	None	Social	Medical	Mixed	Total
Composite outcome	A	–	8	5	2	15	3	1	8	1	13
	B	1	2	6	2	11	1	–	3	1	5
	C	1	1	4	2	8	3	1	8	1	13
	D	–	9	5	1	15	–	5	7	2	14
	Total	2	20	20	7	49	7	7	26	5	45

$\chi^2 = 0{\cdot}15$; *df.* = 2; N.S. $\chi^2 = 1{\cdot}89$; *df.* = 2; N.S.

Girls younger							Girls older				
Composite outcome	A	2	5	5	1	13	4	1	7	–	12
	B	–	–	5	–	5	2	1	2	2	7
	C	–	3	1	–	4	–	1	4	–	5
	D	–	2	5	–	7	2	1	7	–	10
	Total	2	10	16	1	29	8	4	20	2	34

$\chi^2 = 1{\cdot}11$; *df.* = 2; N.S. $\chi^2 = 2{\cdot}08$; *df.* = 2; N.S.

Key: Composite outcome: See Table 6.

categories, as was their mental state in adulthood. They thus gave indications only of the future mental health or ill-health in adulthood of their subjects, according to the main kind of problem presenting in childhood.

Psychiatric symptoms or syndromes occurring in childhood and adolescence are diverse and result from a combination of aetiological factors, constitutional and environmental, reacting on the developing child. Individually, the long term outlook may be most varied, depending on diverse further factors for good or ill that may impinge on the growing youngster. Thus, more detailed description and analysis of psychiatric syndromes occurring in childhood and their detailed follow-up is needed. Furthermore, there are many uncertainties in the categorization of the psychiatric syndromes of childhood, and problems of nosology to be faced, to 'translate' them in meaningful terms into the psychiatric syndromes of adult life, if such occur later on.

Adolescence can be regarded as providing a link between childhood and adult life. The events and disturbances of earlier childhood are still in the fairly recent past while the follow-up of adolescent patients into early adulthood can be done after a comparatively short interval. On the other hand, adolescents have their own characteristics and any psychiatric disturbance or breakdown then could be different in pattern from those occurring in younger children or in adults.

It seems important, therefore, to record the features of adolescent psychiatric illness or disturbed behaviour, and to follow them up to try and discover further what are the relationships between adolescent illness and that occurring in childhood or later adult illness; or, how far these are transient and not related to either previous or subsequent history. Little has so far been done, although Masterson (1956) followed up schizophrenic adolescents and Annersley (1961) followed up 362 adolescents, three to five years later, admitted to the Adolescent Unit at St. Ebba's Hospital between 1949 and 1953. This work has parallels with the present study.

The present study, while tracing and measuring as far as could be done the occurrence of psychiatric disturbance from early on, through adolescence into early adulthood, shows very few significant relationships between them. The patients concerned were diverse and could for analysis be grouped only into broad diagnostic categories; nevertheless, some indications emerged of the likely outcome for further illness or antisocial behaviour as between these categories, and so provide perhaps some pointers for further study. However, it was not possible to ascertain the outcome in broader terms of mental health as shown for instance by these subjects' job-stability, social or sex life or their personalities.

It seems that in a future follow-up investigation of adolescent patients larger numbers showing a particular syndrome might be chosen and followed up in more detail, to try and determine more specifically the course and prognosis of a particular form of psychiatric illness or of disturbed behaviour occurring in adolescence.

SUMMARY OF FINDINGS

One hundred and fifty-seven patients (94 boys, 63 girls) were followed up six or more years after admission to the Adolescent Unit at Bethlem Royal Hospital, out of 187 patients whose clinical histories and hospital findings were described in Paper I (Warren, 1965).

About one third of the *Neurotic disorders* and about one quarter of the *Mixed* *neurotic and conduct disorders* groups had serious further illness; nearly all of the *Psychotic disorders* and *Others* groups had so, but there was little amongst the *Conduct disorders* group. However, at the time of follow-up there was a further definite shift towards normality in all groups, except the *Psychotic disorders* and *Others* groups. If this was so for the total groups, the outcome for certain sub-groups such as those suffering from obsessional or phobic illness required special consideration.

Further serious antisocial conduct after discharge was almost entirely confined to the *Conduct disorders* and *Mixed neurotic and conduct disorders* groups; it occurred in just over one third in each.

By combining the severity of psychiatric illness found at follow-up with the severity of antisocial record that occurred during the follow-up period, it was found that as a whole girls did significantly better than boys, which was accounted for by the girls in the *Neurotic disorders* group who did particularly well. Adding the sexes, two-thirds of the *Neurotic disorders* group did well, and just over half of the *Mixed neurotic and conduct disorders* group did well. Those who did well in the *Conduct disorders* group amounted to under a half. Only one quarter of the *Psychotic disorders* and *Others* groups did well. Of those that continued to show illness or antisocial behaviour, changes in symptoms that developed during the follow-up period called for a mainly or completely different final diagnosis in some patients and particularly among those in the *Neurotic* and *Mixed neurotic and conduct disorders* groups.

Cross-relationships to be found between the pre-hospital and hospital findings and the outcome were examined. The small sub-group of patients who had childhood psychosis, were brain damaged, or sub-normal, was exceptional; they showed psychiatric disturbance all through and had a poor outcome. For all the rest, the presence of early emotional or psychiatric disturbance prior to the illness that led to admission made no difference to the outcome. A history of conduct disorders showed no relationship with the outcome, but a bad pre-admission Court record, in the very few who had it, was followed by a serious post-discharge delinquent record (6 out of 8). Again the length of pre-admission 'illness' showed no relation to the outcome, nor at admission did socio-economic status, physique, maturity nor level of intelligence (apart from the sub-normals). The type of syndrome shown, whether childish, adult or mixed, also appeared to make no difference.

There was a slight adverse trend in the *Psychotic disorders* and *Others* groups in the severity of illness showing at discharge and at outcome. In contrast, the *Neurotic disorders* and *Mixed neurotic and conduct disorders* groups showed a favourable trend; the latter significantly better than the former, for illness. In both groups combined the younger patients did significantly better than the older. However, the few who were still seriously ill at discharge tended to remain ill. The prognoses made at discharge showed considerable disparities; they tended to be too pessimistic for the *Neurotic disorders* group, but in the *Psychotic disorders* group most cases did badly, regardless of the prognosis given. Finally, whether or not patients carried out recommendations at discharge for social placement or for further medical treatment seemed to make no difference to the outcome at follow-up.

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PSYCHOLOGICAL ASPECTS OF ACCELERATED PUBERTAL DEVELOPMENT

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INTRODUCTION

The literature on normal pubertal development and the pathology of such development is very extensive, and well-established principles have been laid down for both diagnosis and treatment of abnormalities. However, there are two areas where evidence is scarce. One is where the departure from the norm of pubertal development is gross, and the second is the relationship of such mal-development to other aspects of the developing person. The case to be reported illustrates an extreme departure from the norm of pubertal development and offers an opportunity to examine this condition in relation to other aspects of development. In particular, psycho-social aspects of a case of grossly accelerated puberty first reported by McGeorge and Connor (1961) will be further considered.

CHANGING EMPHASES

In the literature on precocious puberty there is a detectable shift from almost exclusive consideration of somatic aspects of the developing person to a discussion of multiple and differential factors of a wider kind. There are two reasons for this—data from specialists in normal child development have been found necessary as a base from which deviations can be estimated, and psychosomatic and environmental factors have been seen to have a bearing, not only for treatment but also for correct diagnosis.

Textbooks on endocrinology such as those of Talbot *et al.* (1952) and Wilkins (1962) make little reference to developmental aspects other than somatic, while the case reports of precocious puberty of Jacobsen and Macklin (1952) and Lloyd, Lobotsky and Morley (1950) are confined solely to physical and medical data. Wilkins, however, does mention the need to consider the relative roles of environment, hormonal and chromosomal factors in determining psychological development in these cases, and in the second edition of his book refers to "indicators of maturity" (among which he includes mental tests) in assessing the state of development. Very early surveys by Leiner (1920) and Doe-Kulman and Stone (1927) emphasize "psychical" data of an observational kind, and other studies, for example Keene and Stone (1937) and Jolly (1955), quote results of mental tests, "intellectual levels" and "mental ages".

However, it was not until attention was given to basic studies of normal child

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development, and to the pubertal period in particular, that the importance of a full psychological report was recognized in cases of precocious puberty. After Gesell (1939) illustrated the need for longitudinal study of such cases and the necessity for more than meagre developmental and psychological data, increasing reference has been made to psychological data in reporting such cases. For example, Seckel (1950) in describing his case refers to "developmental ages" and to wider maturational than merely somatic aspects. Also in dealing with sexual development he includes psychosexual aspects. Tanner (1962) furthers this emphasis when he recognizes cultural factors as well as biological, and he points out the inter-relation of many aspects of development in precocious puberty. The full realization of the importance of psychological and particularly psychosexual development, however, is seen in the studies of Hampson and Money (1955; 1962) and Money and Hampson (1955; 1957), and the present case will be discussed later in relation to this work.

OUTLINE OF THE CASE

Although clinical details of this case have already been reported (McGeorge and Connor, 1961), the more important features are summarized here as background to additional data now presented.

The infant was born on July 15, 1953, the youngest of a family of six, all of whom had developed normally. Her birth weight was 4·03 kg and progress was normal during the first four or five months. At about five months, however, enlargement of the nipples was noticed, followed by breast development and pubic hair. The first menstrual period occurred at 9 months and the second at 11 months, each of two days' duration.* On admission to hospital at 20 months her height was 89 cms and weight 15·9 kg. Her facial expression was extremely mature for an infant of 20 months, while her stature was that of a stocky child of considerably older years. Breast development was proceeding, the areolae and nipples being already well developed.

Detailed clinical, biochemical and radiological investigation at this time and again seven months later failed to reveal any evidence inconsistent with the diagnosis of constitutional precocious puberty. In order to confirm this it was decided at the age of 27 months to explore the pelvic organs surgically. On the day before operation the child had her third menstrual period. At operation the uterus was precociously developed with the body larger than the cervix. The left ovary contained a recent corpus luteum and histological examination of an excised tissue wedge showed normal cellular ovarian stroma with numerous primitive follicles. The fourth menstrual period occurred six months later, since when periods have recurred without intermission every 28 days.

The child's physical and mental development up to the age of 10 : 5 has since been assessed on seven occasions (Table 1). In Fig. 1 the chronological ages at whch she passed various development milestones have been plotted, in the style of Seckel (1950), against the average age at which the corresponding milestones are generally passed by normal children. From these curves it is evident that there has been

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*The youngest cases of precocious puberty in girls were reported by Plumb (1897) when menstruation occurred at 6 weeks and Irion (1896) when it occurred 7 days after birth.

TABLE 1. SUMMARY OF CHILD'S PHYSICAL AND MENTAL DEVELOPMENT

Chronological age (years)	0 : 3	0 : 6	0 : 9	1 : 0	1 : 8	2 : 3	3 : 3	4 : 2	5 : 9	6 : 11	8 : 5	9 : 5	10 : 5
Weight (kg)	6·8	9·5	12	13·6	15·9	19·1	23·6	28·6	34·9	37·5	42·7	44·9	45·9
Height (cm)	61	68	74	79	89	98	111	119	131	134	137	139	140
Skull circumference (cm)	41	45	46	—	48	—	51	—	54	54	54	54	54
Bone age (years)	—	—	—	—	4 : 6	10 : 0	14 : 0	15 : 6	17 : 0	18 : 0	19 : 0	19 : 0	19 : 0
Dental age (years)	—	—	—	—	1 : 6	—	—	4 : 0	6 : 1	7 : 0	9 : 3	9 : 3	11 : 3
Mental age (years)	—	—	—	—	—	2 : 11*	4 : 4*	6 : 0*	7 : 10*	9 : 6†	12 : 5†	13 : 6†	14 : 8†
I.Q.	—	—	—	—	—	130*	133*	140*	136*	137†	142†	136†	141†

*Terman–Merrill Revision of Stanford–Binet Test—alternate Forms L and M.
†Wechsler Intelligence Scale for Children.

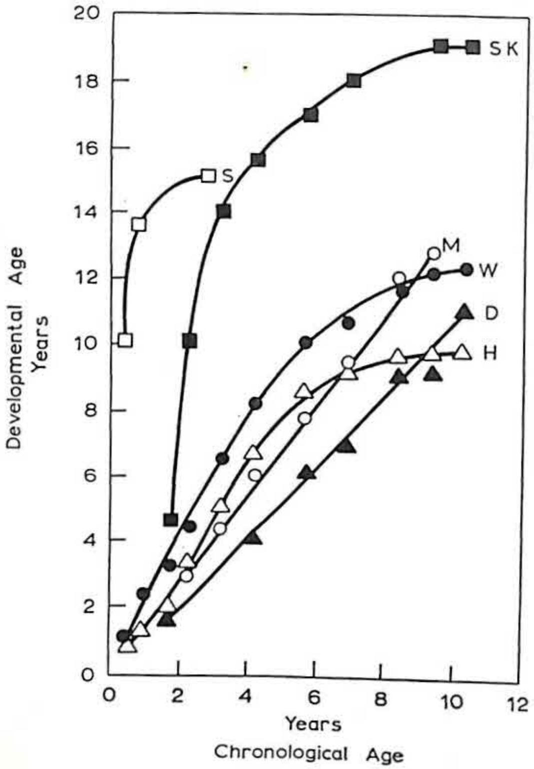

FIG. 1. Composite development chart. The age at which child passed various developmental milestones (chronological age) has been plotted against average age at which normal children pass corresponding milestones (developmental age). The curve for dental age approximates closely to the curve of normal average development for all systems. S—sex age; SK—Skeletal age; W—weight age; M—mental age; H—height age; D—dental age.

considerable variation in the degree of precocity manifest in different anatomical and physiological systems.

PHYSICAL DEVELOPMENT

Height and weight

For the first four months growth in weight and height had followed the expected course for an infant of slightly above average birth weight. During the remainder of the first year, however, when deceleration normally occurs, increase in weight continued at an almost uniform rate, with the result that at the age of 12 months her weight of 13·6 kg was about 2·27 kg in excess of the expected weight, while her length of 79 cm was also slightly above the average (Plunket Society, 1950). She continued to grow rapidly during early childhood, until at 5 : 9 years her weight corresponded with that of an average New Zealand girl of 10 years and her height with one of 8·5 years (New Zealand Department of Health, 1956). Subsequent measurements, however, indicated that this phase of rapid growth was coming prematurely to an end. At the age of 10 : 5 her weight was tending to stabilize at just over 45·9 kg while little increase in height had occurred during the previous two years.

Skeletal development

One of the most striking features was the pattern of skeletal development. At 20 months the bone age was assessed as 4·5 years and at 27 months as 10 years—an increment equivalent to 5·5 years of normal growth in a period of seven months (McGeorge and Connor, 1961). During the next four years the rate of skeletal maturation approximated to normal but with the bone age consistently about 11 years ahead of the chronological age. The closure of the upper femoral epiphyses before the age of 6 : 11 indicated, however, that growth in stature was by this time coming to an end, and this was confirmed by the subsequent decrease in linear growth.

Dental development

Previous observations (McGeorge and Connor, 1961) confirmed that the development of the dentition was relatively unaffected, despite the advanced skeletal maturation associated with idiopathic sexual precocity in this patient.

Since then the number of permanent teeth present have been noted on three further occasions. These are compared with the norms for New Zealand girls (Leslie, 1951) in Table 2 and indicate that dental maturation in the present case is neither advanced nor retarded according to observations on tooth emergence.

TABLE 2. NUMBER OF PERMANENT TEETH PRESENT AT THREE AGES COMPARED WITH MEAN NUMBER OF PERMANENT TEETH PRESENT AT SIMILAR AGES IN NEW ZEALAND GIRLS

The patient		New Zealand girls		
Age in years	No. teeth present	Mean age in years	Mean no. teeth present	S.D.
8 : 6	13	8·5	12·62	1·92
9 : 4	13	9·5	13·86	3·19
10 : 4	20	10·5	19·08	4·24

Wagner, Cohen and Hunt (1963) have reported a detailed longitudinal study of dental development in three girls and one boy with idiopathic sexual precocity. In the three girls they found that "dental development was not only not advanced, but even slightly retarded but well within normal range, both in regard to eruption and on X-ray examination". This seems to be confirmed, at least insofar as radiographic assessment is concerned, by the findings in the present case.

Development of physical skills

Although a formal assessment of her physical skills had not been undertaken during infancy her mother reported that she had sat up at the age of 8 months, crawled at 10 months and walked unaided at 18 months. At the age of 6 : 11 her physical skills in terms of whole body movement were found to be well ahead of her years, while her control of running, jumping, catching, throwing, aiming and balance were all remarkable for a child of her age. It was deduced that she was not only skilful for her age but also for her size. There are no published norms of such skills for New Zealand children but she was far superior to certain American standards specified as normal for a child of her age (Brooks, 1929; Methency, 1940). On a hand dynamometer, for example, she constantly produced a grip of 18 kg with her right hand and 22 kg with her left, figures which correspond with the norms of American girls of 10 and 12 years respectively. Though she had a good sense of rhythm, observations of her various movements showed that she was unusually tense.

On re-assessment at the age of 9 : 5 the impressions gained previously were confirmed. Both for her age and for her size she was a remarkably strong young woman, quick to learn and to size up new motor problems.

She was of typically pyknic adult build, more endomesomorphic than mesomorphic, and the surface markings of her limb musculature showed that she was carrying a good deal of extra weight. There was still evidence of residual muscular tension, but not as marked as on the first occasion.

PSYCHOLOGICAL DEVELOPMENT

Periodic testing of developmental and educational progress during the subsequent years has continued and the following is a longitudinal description of the case:

(*a*) *Mental development.* On first referral to the clinic for assessment of intelligence and general behaviour at 2 : 3 it was tentatively estimated that her mental age was 2 : 11, giving an I.Q. of 130 (Terman and Merrill, 1937). On the second visit at 3 : 3 it was definitely established that the child was of superior intelligence, with an I.Q. of 133 on the Terman–Merrill. This high rate of mental development continued fairly uniformly over the subsequent observation period of seven and a half years. Reference to Table 1 and to the composite development chart in Fig. 1 will show this growth in relation to other aspects of the child's development. In relation to these assessments it can be seen that the Binet Test was administered repeatedly, though in Alternate Forms L and M, and likewise for the Wechsler Scale. Though the tests were separated by one year it is possible that practice effects operated to boost the subsequent scores slightly.

In earlier assessments of her intelligence, remarkable motor development and coordination of movement was noted and this was sustained in subsequent examinations. This is illustrated by her performance on the Goodenough Draw-a-Man Test (Goodenough, 1926) at the age of 5 : 9 when she scored a drawing age of 11 years (Fig. 2). It is also seen in her high ability in free expression and figure drawings (Figs. 3 and 4). On the Minnesota Rate of Manipulation Test (Betts and Ziegler, 1946) she showed very highly developed hand-eye coordination and execution in both gross and fine movements, and at the age of 5 : 9 exceeded the norm for 8 years olds.

One interesting point in a differential diagnosis of her intellectual functioning can be brought out here. The tests used in the very early mental assessment were necessarily confined to drawings, pictorial and concrete objects, and the manipulation of non-verbal material. Since she was well advanced physically, and in speed and coordination of motor control, she tended to score very highly on these tests. When tests of higher verbal and number content, such as the Wechsler Intelligence Scale

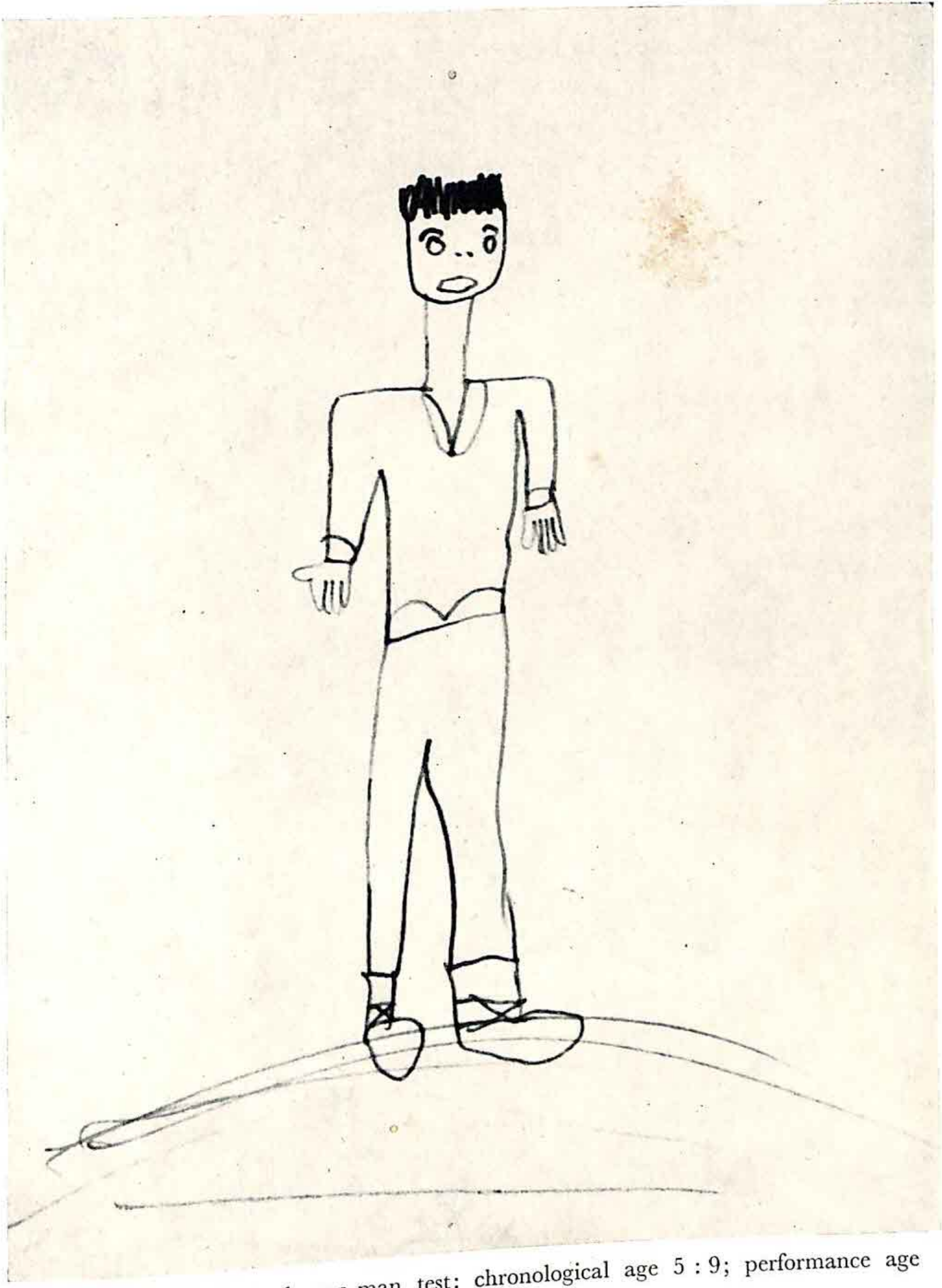

FIG. 2. Goodenough draw-a-man test: chronological age 5 : 9; performance age 11 years.

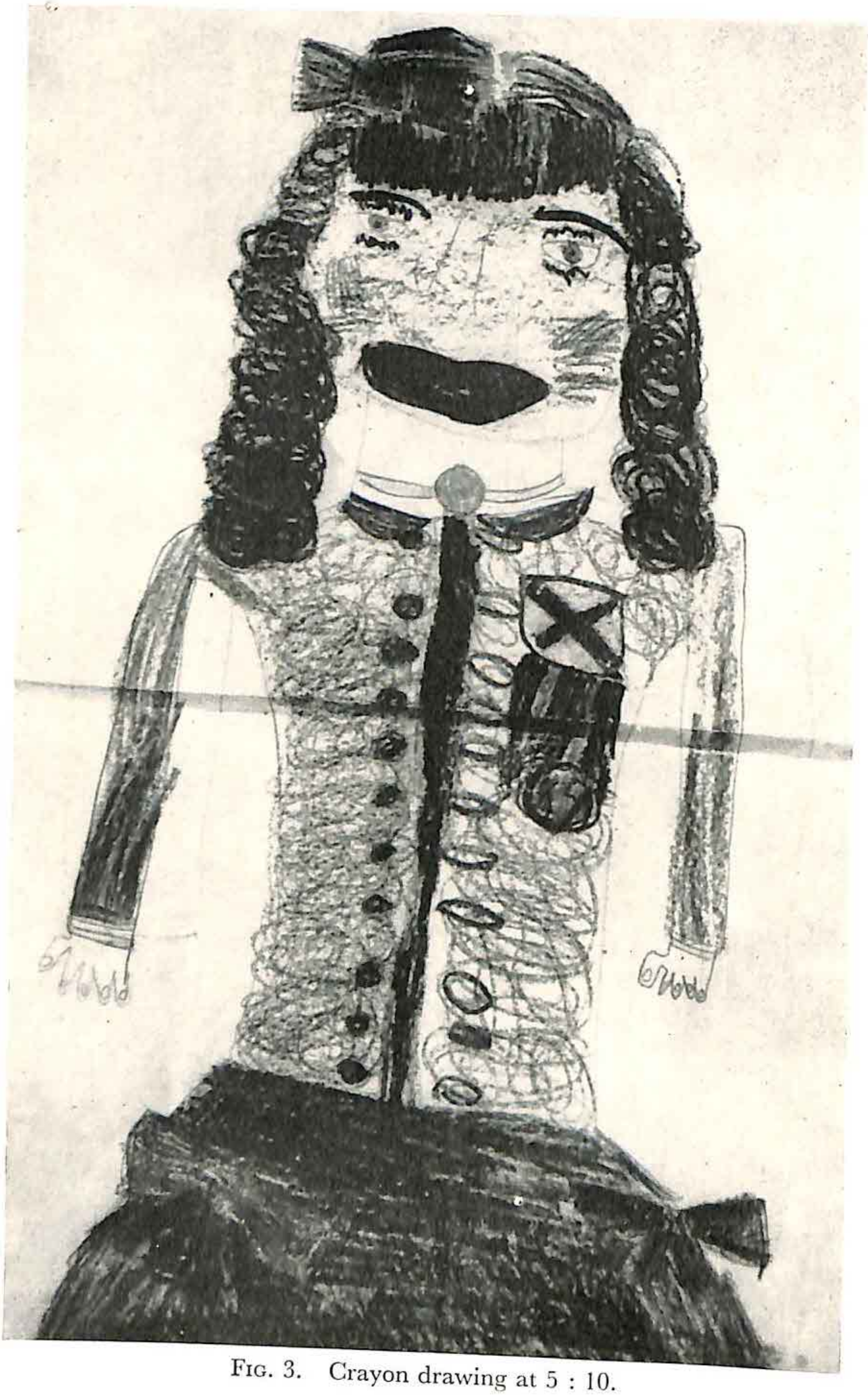

FIG. 3. Crayon drawing at 5 : 10.

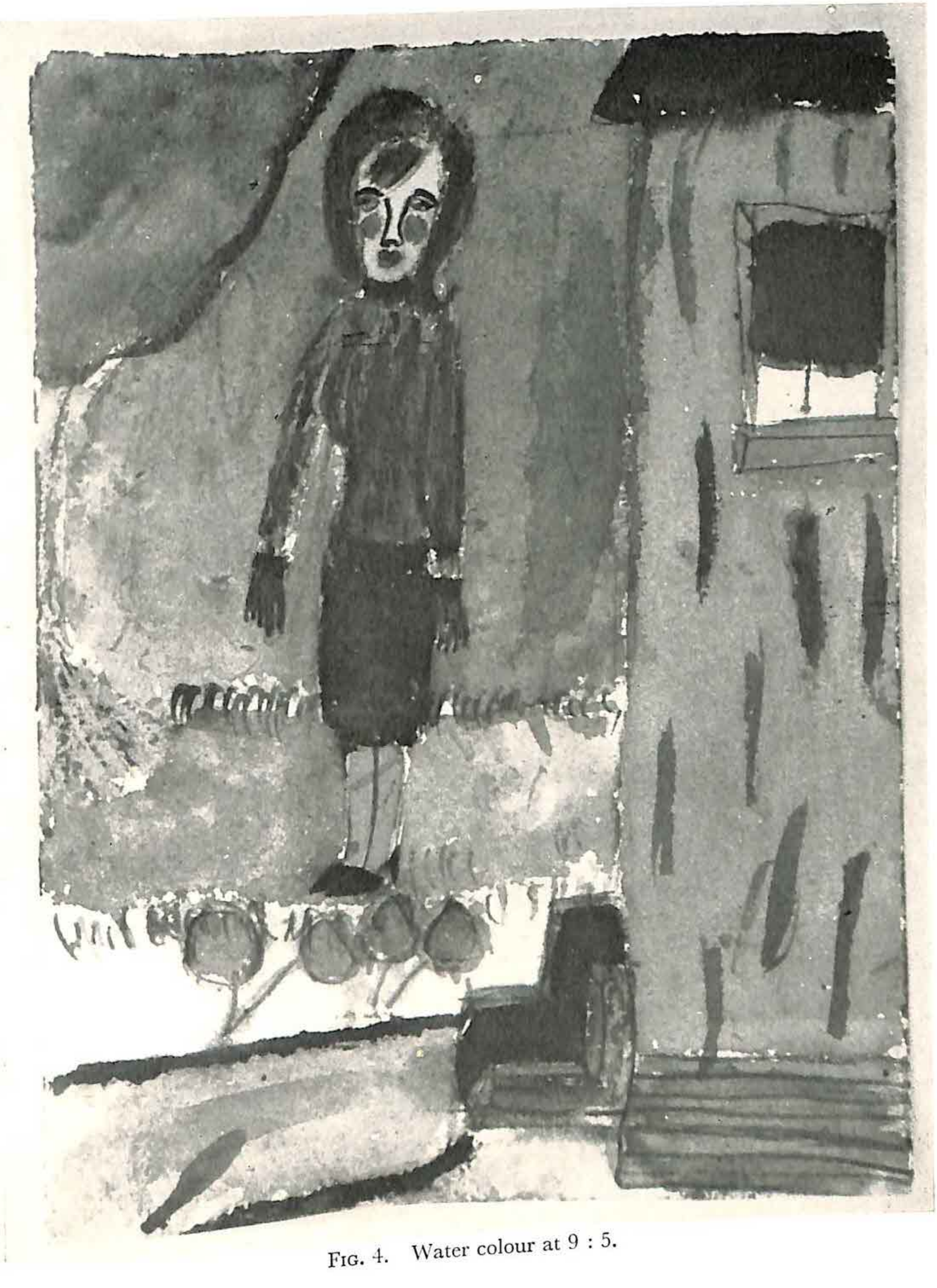

FIG. 4. Water colour at 9 : 5.

for Children (Wechsler, 1949) were given in later testings, it became increasingly apparent from the results that her verbal intelligence was not nearly as highly developed as her ability to handle non-verbal material. This is clearly seen in the last three testings where at ages 8 : 5, 9 : 5 and 10 : 5 her verbal I.Q.s on the Wechsler Scale were only 129 (non-verbal 156), 115 (non-verbal 150), and 119 (non-verbal 156) respectively. This is also confirmed when the discrepancy between her potential and actual school performance is examined later. It is possible that an inflated estimate of her overall rate of mental development is still being obtained as a result of her very superior performance on manipulative and non-verbal material, and that her ability to handle abstract and conceptual material is less well developed. However, with these reservations the last three assessments confirm that her general rate of mental maturing is superior. The question as to whether this is related to her precocious pubertal development will be discussed later.

(*b*) *Emotional and social development*. On the first two examinations (2 : 3 and 3 : 3) there were no overt signs of behaviour problems and she was considered to be emotionally stable and mature for her age, although this was difficult to assess objectively at the time. The parents reported also that there were no signs or symptoms of emotional disturbance. This was in spite of a period in hospital at 20 months, and two subsequent admissions and examinations by a number of different specialists. On her third visit to the clinic (4 : 2) she appeared to be slightly withdrawn and to lack the usual activity and curiosity associated with children of this age. On subsequent annual visits (5 : 9 and 6 : 11) a tendency to withdraw was further noted; she tended to be serious and even lethargic, but always responded well when stimulated. At 5 : 9 on the Raven Controlled Projection Test (Raven, 1938) and the Rosenzweig Picture Frustration Test (Rosenzweig, 1948) there was an unusual number of aggressive responses, although these did not persist in later testings. On this same occasion overt signs of tension appeared during the session, for example, chewing of fingers, and undue manipulation of her handkerchief. Also on this occasion, when left alone in the observation room with the tape recorder running, she burst into tears. This visit, however, was in the first year of school, and may well have been associated with problems of transition from home to school. Some further references to running away, killings, punishment, and being cut by a "whole lot of glass", occurred in the Raven Controlled Projection Test on the fifth visit (6 : 11). They could not be linked with anything in her life-experience but may have reflected significant conflicts or fears of unknown origin. Such aggressive and violent responses did not occur in the Rosenzweig Test, which showed a normal score though with a fair number of extrapunitive responses.

On all visits to the clinic the child showed marked social control. In earlier visits, as mentioned previously, she was quiet and reticent for a young child and on subsequent visits she showed social control, almost amounting to poise, beyond her years. This social maturity in the clinical setting probably resulted from her advanced precision and coordination of movement, and from the fact that she had gained a certain composure in dealing with so many different adults. One suspected that she really did not mind all the attention she was getting. Her parents and teachers reported that she made friends easily amongst her peers, and her adjustment to home and school settings was good.

(*c*) *School progress*. Although the usual age of starting school is five years, the patient was considered well ready for school when she was 4 : 6 and the teacher considered her ready to start reading immediately.

During the first year at school she was found to be performing at an average level in the bright group, in both reading and number work. The only activity in which she then showed more maturity than her fellows was in drawing. At the age of 5 : 3 she was still performing in reading and number work at the average level of a fast-moving group of age-range 6 : 0–6 : 3. At 5 : 9 her reading age was 6 : 1 on the Schonell Graded Word Test (Schonell, F. J. and F. E., 1950) while her arithmetic age was 6 : 4 on the Schonell Diagnostic Arithmetic Test (Schonell F. J. and F. E., 1950). Both these tests indicate that in relation to her mental age she was retarded in these subjects. However, her printing, writing and figuring were exceptionally good, and the following sample of her written verbal expression at 6 : 10 gives an indication of her maturity in this respect:

MY BROTHER

I have a brother called Alan. He has blue eyes, dark hair and clean fingers. Today he is wearing a grey jrsey,(*) brown socks and grey trousers. One day he was sent to buy some sausages and came back with saveloys. Do you think he is a very good messager(*) boy?

She was promoted to the standards in the usual way at 6 : 6 and on retesting at the age of 6 : 11 her reading age was 9 : 5, an increase of 3·3 years during the 12-month period. This indicates that she was then performing more closely to the level of her mental age and was therefore no longer retarded. However, her arithmetic age was then 7 : 9, indicating some remaining retardation in this direction.

On the last three testings (8 : 5, 9 : 5 and 10 : 5) she has slipped back again in her reading and number work. While she is performing well above the average child of her chronological age, she is not achieving as well as her mental age would suggest that she should. Also, she is still more retarded in number work than in verbal achievement. Figure 5 gives a summary of the test results over the whole period of schooling and compares mental, reading and arithmetic ages. It can be seen that her achievement ages are progressively falling behind her mental ages in the basic skills of reading and calculating. However, as mentioned earlier, the mental test

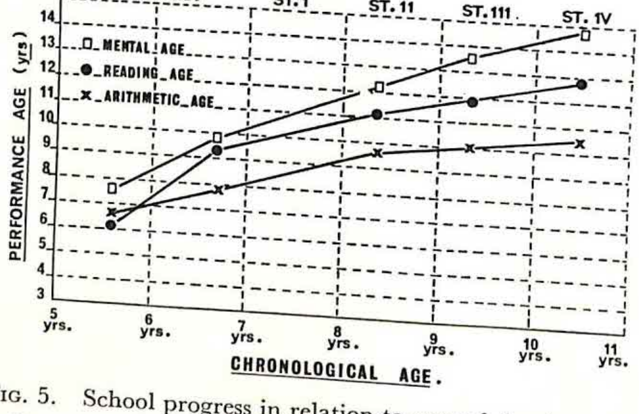

FIG. 5. School progress in relation to mental development.

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* Child's original spelling.

results may be boosted by her success on non-verbal aspects. If one based expectations on the more verbal aspects of her abilities, there would be less discrepancy between achievement and measured mental functioning, and she would therefore be achieving more closely to the expected level. On this point it is worth noting that the headmaster and teachers at her school did not consider her a particularly bright child in spite of the mental tests, and consequently regard her school performance as very satisfactory.

(*d*) *Home life*. The patient is the sixth child of a family living in a rural area. The mother reports that there were no difficulties at birth, and that the child passed her milestones of weaning, walking and talking normally and a little ahead of the other children. The home background has been warm and affectionate and very stable. At the age of 8 : 5 the Bristol Social Adjustment Guide (Child in the Family) (Stott and Sykes, 1958), records that the parent–child and parent–parent relationships are good and that the child is very attached to her siblings and is liked by them. This was confirmed by the Bene–Anthony Family Relations Test (Bene and Anthony, 1957) in which no undue ambivalent or egocentric responses were recorded, and the distribution of incoming and outgoing feelings to various members of the family was normal. Also on Bellak's Children's Apperception Test (Bellak, 1952) the interpretations were consistent with a complete absence of tension and maladjustment in the family setting. Only two negative responses were recorded—a fear of animals and shyness with strangers who visit the home. This was noted earlier in her placidity in school and her tenseness and withdrawal in the earlier clinic sessions. While the projective tests at 5 : 9 and 6 : 11 suggested some emotional and social disturbances, her adjustment to home life at 8 : 5 appeared to be very good.

The home is set in a good area in a small country town and the family are particularly fortunate in that the small closely-knit rural community permits good relations with neighbours and the school. This enables them to both preclude, and remedy, any undesirable attitude towards the child's unusual condition.

(*e*) *Psychosexual development*. The difficulty of gathering data on psychosexual maturation contrasts strongly with the distinctness of the somatic signs of accelerated puberty. For psychosexual data in the very early years of childhood one can depend only on observation, mostly by the parents. Later, teachers' observations, clinical assessment, and testing, can give further insights. In the present case, up to the school years, the parents report that there was nothing unusually different about her psychosexual development compared with her other five siblings. However, one possible unusual feature is the reaction of both child and parents to her condition. This involved hygiene measures in connection with menstrual periods, and information given to the child on her condition. In this respect the parents report that the child had been carefully taught the necessary procedures to cope, with help, with the menstrual flow. They encouraged her to use the lavatory on her own during these periods. Also, it has been explained to the child that menstruation, together with enlargement of the breasts and appearance of pubic hair, is normal, but has occurred earlier in her case. Her siblings know about her condition and similar explanations have been given, appropriate to their ages, so that all the family regard her condition without undue curiosity or concern. On transition to school, both headmaster and teacher were fully informed beforehand, and took ordinary precautions for the child's protection. Nothing unusual has been reported from the school scene, except that on one occasion during the first year at school she was observed showing her breasts to a small group.

It was not possible to systematically examine her sexual imagery or fantasy life or to assess what Money *et al.* (1957) call her "gender" role. However, some slight evidence comes from her drawings and from her comments in relation to various tests and situations in the clinic. Her drawings about the age of 6 : 7 were mainly of highly-decorated and flamboyant human figures, mainly women, all dressed up and wearing heavy lipstick and make-up. One was in the role of a bride. Another was described as wearing a "love-sign". These particularly "romantic" themes were certainly unusual, but were replaced later by more conventional figures and by animals, mainly wild. The circus was also a recurring theme. Viewing her drawings as symbolic "self-portraits" she drew almost always female figures indicating the adequacy of her psychosexual identification. Both Bieliauskas (1960) and Kaartinen (1960) confirmed that both sexes at all ages prefer to draw a person of their own sex.

During some of the test situations opportunities were provided for "giving herself away", with regard to her attitude to sex and to the opposite sex, but there was no evidence of either sophistication or discomfort about boy-girl or girl-girl relationships. Her mother explained that she had not given the patient any sex information beyond that necessary to immediately explain and deal with menstruation and other signs of pubertal precocity. The only other possibly relevant fact is that at four years of age she objected very strongly when a photograph of her general bodily development was being taken while naked. In general, however, she appears to have attitudes and feelings towards others which are normal for her chronological age. No unusual overt sexual behaviour has been observed other than the showing of her breasts referred to earlier, and she is no more curious than usual about her own condition, nor does she have a precocious interest in the opposite sex. It must therefore be concluded that she is "child-like" in her sexual behaviour, and although she is precocious in pubertal development, her psychosexual development is merely consistent with her above average allround psychological development.

THE PRESENT PICTURE

At the end of eight cumulative studies ranging over about 9·5 years, sufficient data have been collected both to describe the patient's present state of development and to provide some material for comment on some of the current hypotheses about psychological aspects of accelerated puberty.

Appearance

At the age of 10 : 5 the patient has the appearance of a girl much older than she actually is. She is 140 cm high and weighs 45·9 kg, is well proportioned and has a facial maturity, poise and co-ordination of movement far beyond her years. Her voice is vibrant, she is very fluent in speech, and on the surface appears socially thoroughly at ease. Yet she is child-like in some of her expressions and interests, and the presence of extraneous movements, such as playing with the belt of her dress during conversation, suggests some underlying tension and anxiety. Reference to Fig. 1 shows that at the age of 10 years her height coincided with the mean height of

New Zealand girls of similar age. Prior to that she had been tall for her age, but with closure of epiphyses no further growth is possible, and consequently her permanent shortness of stature will become more evident in the future. With the cessation of the adolescent growth spurt, increments in weight have also decreased, with the result that even now she does not appear to be as plump as she was five years ago.

Intellectual functioning

Tests of intelligence (Wechsler Scale and Stanford Binet Test) re-administered at 10 : 5 show that her general level of mental ability is about two standard deviations above the mean although her verbal mental ability is still well below her performance (practical) ability—Wechsler Scale Verbal I.Q. 119, and Performance I.Q. 156. Her results on the same Standardized Achievement Tests in Reading and Arithmetic as administered formerly shows, at 10 : 5, a lower level of performance than that expected from her mental ability. On the other hand her oral and written expression maintain the promise shown earlier.

Emotional and social adjustment

The Rosenzweig Picture Frustration Test, the Raven Controlled Projection Test, the Bene–Anthony Family Relationships Test and the Bristol Social Adjustment Guides were all re-administered at 10 : 5. These tests showed that there was a good balance between her patterns of reaction to frustration in everyday life settings, and that there were no undue signs of ambivalence, or egocentric attitudes to friends or members of the family. Most of her projections to the material were assessed as normal for her age and sex, or explicable in terms of the environmental and cultural setting. For example, references to guilt feelings about carelessness reflect reality, as her parents report that she is quite untidy and careless about the house. Some mention was made of lack of friends and of a desire for more friends, but little emerged that was symptomatic of emotional instability or social maladjustment. The unexceptional results on these tests indicated no need for further probing and it was considered that at 10 : 5 she was a very well adjusted girl.

Attitude to her condition

Her attitude to coming to the hospital and to the child guidance clinic is one of apparent acceptance, ostensibly to see how well she can do some "puzzles" and to have a short holiday in the city. Earlier there were some indications of withdrawal and disturbance when admission to the hospital was necessary, but now that she is interviewed as an outpatient on one day a year the parents report that she actually looks forward to coming. The parents have been co-operative, and have played a supportive role in her earlier temporary absences from home, visiting her frequently, and giving simple assurances and explanations. They have good insight into the child's needs, an example being their explanation to her of her menstrual periods. It was not thought appropriate to draw her attention directly, in the clinic, to her precocious sexual development. However, in response to the question as to why she comes to see us each year, she replied that it was to ensure that she kept well.

DISCUSSION

In previous studies of precocious puberty the question of the relation of accelerated pubertal development to other aspects of growth has frequently been raised. In particular, physical, mental, emotional and social development have been examined, and more recently psychosexual development. Apart from the undoubted conclusions about acceleration in accompanying physical growth (with the exception of dentition), much is known also about the relation of precocious puberty to other aspects of growth and the interaction of all these aspects with one another. The evidence on the psychological development of such cases, and the data from our present case, enable us to examine further these relationships and the effect of precocious puberty upon development in other respects.

1. *Mental development*

So far as mental development is concerned there appear to be as many cases of precocious puberty reported with above average as below average intelligence. Earlier studies such as those of Leiner (1920) and Keene and Stone (1937) suggested that these patients tended to be below average in intelligence. This was perhaps because only subjective observations were made or a very small proportion were tested, and incongruity between mature physical appearances and child-like conduct may have given an impression of characteristically low level mental behaviour. Seckel (1950) and Jolly (1955) report cases of average and above average intelligence. If Tanner's (1962) hypothesis holds that there is some "general factor of bodily maturity", and a low but positive correlation between all aspects of growth at puberty, one would expect sexually precocious children to be slightly above average in intelligence. It is possible, however, that mental growth, like dental development, is not related appreciably to sexual precocity but depends upon genetic and environmental influences of the usual kind. Considering the influence of accelerated pubertal development on mental growth, Gesell (1939) claims that there is a "preferential immunity of the central nervous system to certain forms of endocrine imbalance". With our present case it is not yet possible to conclude during this developmental period whether her high rate of intellectual development is due to precocity or to inherent mental ability. Further study of her mental growth curve to maturity, and its later comparison with the normal growth curve, should provide more conclusive evidence.

2. *Emotional and social development*

With regard to emotional and social development a similar position probably holds. Most of the evidence from case studies (Gesell *et al.*, 1939; Seckel, 1950; Wilkins, 1962) confirms that personality development lags behind precocious sexual development, and that while some cases appear mature in relation to their years they are "child-like" in relation to their advanced sexual development. From these studies also, and from others (Money and Hampson, 1953), observational data suggest that some extreme cases of precocious puberty show some emotional disturbance, but that the majority are well adjusted to their condition. With more rigorous testing in our present case the patient has been found to be emotionally very stable and socially well adjusted. It is probable again that such states of stability or instability can be explained by life experiences and by hereditary factors. In some cases of precocious puberty the fact of the accelerated pubertal condition itself, and its contrast with that of the child's peers and other aspects of the child's own development, is sufficient to explain some disturbances. It is interesting to note the reference in reported case notes to a grave, poised demeanour or even to lethargy and withdrawal (Gesell *et al.*, 1939; Hampson and Money, 1955; Leiner, 1920). This also applied to one stage of development of the present case at about 5 to 6 years of age. To what extent this phenomenon was due to somatic influences, to psychological disturbance, or to a false impression on the observer's part is unknown. However, the longitudinal data in our present case indicated little effect of pubertal precociousness upon emotional and social development or adjustment.

3. *Psychosexual development*

In most studies of sexual precocity where psychological data have been reported the very interesting question has been raised as to whether these cases are as mature psychosexually as their accelerated pubertal development might seem to warrant. Seckel (1950) gathered extensive psychological data on his six cases and found "no true signs" of psychosexual precocity. There were no overt signs of interest in the opposite sex or of what might be called "adolescent" behaviour, and in general their psychosexual behaviour was characteristic of their chronological ages and level of mental development. The studies of Hampson and Money (1955) largely confirm this. They conclude that there is no automatic manifestation of psychosexual precocity, and that though the psychosexual life of such cases may be "magnified", they are otherwise typical for their age psychosexually.

In Money and Hampson's (1955) case of a 6·5 year old boy, though his sexual behaviour was more highly energized it was characteristic of his chronological age. It is suggested by Tanner (1962) that "the hormones need a mature brain equipped with adolescent experience to work upon if adult sex behaviour is to occur". An unusual case is reported by Le Marquand and Russell (1934) of a two year old boy fully matured sexually and with a sex drive quantitatively appropriate to an adult, who had no idea of adult sex behaviour but behaved in a way more appropriate to a two year old—for example rubbing his penis against women's legs. Their conclusion was that the hormonal stimulation of the reproductive centres was "out of step" with the maturation of the mental processes that would permit more adult-like behaviour. The available evidence suggests that overt precocious sexual behaviour may be more characteristic of boys than girls. It also suggests that precocious boys may be overtly sexually active earlier than girls.

As mentioned above, our patient reveals little in her overt or covert psychosexual behaviour to suggest that she departs from the normal for children of her age and general ability. However, it was not possible to examine fully her psychosexual fantasy and dream life or what Money (1960) calls her "erotic cognitional rehearsals". It may be that while cases of this kind do not depart from normal sex life, traditionally viewed as latent in earlier years with a relatively sudden occurrence at adolescence, there may be significant variations in the normal pattern of early and continuous psychosexual development in the Freudian sense. It is only under intensive and continuous analysis with matched cases that such psychosexual precociousness could be revealed. For our present case it can be presumed that psychosexual behaviour of a conventional kind is largely learned behaviour and is little affected by precocious pubertal development of a constitutional kind.

From the above evidence it is clear in this case, as in other cases, that psychological development is not as "precocious" as pubertal development, though we cannot conclude that it is unaffected by the precocious puberty. Likewise we cannot conclude that genetic factors, tumours, or brain damage, which determine the time of hypothalamic sexual maturation does not also affect development in other respects. However, the effect on psychological development seems slight compared with the effect on physical and physiological development.

GENERAL AND DIFFERENTIAL PRECOCITY

Many theoretical explanations have been given to account for the lag of psychosexual development in cases of precocious puberty. They involve the old controversy of the relationship between the various biosocial "systems" in the developing person, and the extent to which "hereditary" and "environmental" factors are involved. Needham (1942) introduced the concept of "heterauxesis" to describe differential growth and the relation of the growth rate of parts to that of the whole. This is similar to Tanner's (1962) proposal of a general factor of bodily maturity within which aspects of more limited maturity varied independently of one another. Partial evidence for this is seen in studies of precocious puberty generally, and in our present case in particular, where most developmental aspects are above average, with a wide variation between pubertal, dental, psychosexual, and other aspects of development. Another example is that of Seckel's (1950) where he refers to the "two major disharmonies" of the teeth and central nervous system not being affected by the "hormonal crisis" of sexual precocity. Again, Gesell (1939) refers to "the amazing degree of invulnerability—(and) of preferential immunity" of the central nervous system and the teeth to certain forms of endocrine unbalance, and that there are "deeply intrenched mechanisms of maturation" which tend to preserve the integrity of the central nervous system.

These theories, together with evidence from longitudinal studies and surveys of precocious puberty, suggest that a much more subtle classification is needed than the simple dimensions of Needham (1942) and Tanner (1962). Shuttleworth (1959) touches on this when he proposes his "biosocial and developmental" theory in criticizing Kinsey's (1953) severely "environmental" approach. It may well be that there is an interaction and overlapping of the various "systems", a developmental interplay which permits far wider variations and less interdependence between them than was previously supposed.

Examples of this are seen in Money's (1955; 1960) work on the relative "independence" of psychosexual development in precocious puberty in hermaphrodites and in sex deviates. In his studies of sexual precocity he ascribes as much importance in the development of psychosexual status to maturity of cognitive functioning through experience, as to bodily achievement in sexual maturation. Released erotic arousal, he claims, has a perceptual aspect which is closely associated with learning, and is not pre-determined by, or an automatic product of, premature normal functioning. In reporting work on the establishment of the gender role of hermaphrodites identically diagnosed, but raised as different sexes, Money *et al.* (1957) and Money (1963) observe that each individual develops psychosexually to have the gender role and identity of the assigned sex, and that this seems to have over-ridden any genetically determined tendencies. He infers, therefore, that such individuals are born psychosexually neutral or undifferentiated. On this hypothesis it is not remarkable that our present case is naive psychosexually, though grossly premature somatosexually.

IMPLICATIONS FOR TREATMENT

At the present time there is no known medical treatment, preventive or remedial, for constitutional precocious puberty. However, with the increasing attention to psychological aspects of the condition, certain well-known principles and practices for guidance and management are relevant.

In the light of evidence from our present case and from other studies it seems best for treatment purposes to view all aspects of development as perfectly normal, except that in one respect normal functioning has begun earlier than in all the others. An orientation of this kind both explains "apparent" abnormalities and offers a basis for treatment. From this point of view over-maturing in certain aspects can be explained to the patient and provided for, without undue emphasis being placed upon the condition.

Within this framework there are a few details of guidance and management which apply specifically to the emotional and social adjustment of sexually precocious children. Firstly, they may have been separated from their parents at an early age with a possibility of maladjustment. Secondly, discrepancies of bodily size and functioning may mark them off from their age peers with resulting compensatory behaviour. Thirdly, anxiety may result from a lack of understanding, or from misunderstanding, of their sex urge and functioning. The strength of the physiological sex drive in some of these cases seems equivalent to that of adolescence or adulthood, and this must be sublimated or channelled in the same desirable ways in which it would be in adolescence. However, provided appropriate explanations are made, difficulties are not inevitable, as is seen in our present case. Hampson and Money (1962) have given a good outline for general casework in this area and Money (1961) deals specifically with the sex education of children with precocious puberty.

Though sexually precocious girls are capable of reproduction, relatively few cases of pregnancy have been reported.* In the case of very young precocious girls it would seem that parental observation and protection should suffice, but as these children grow older there would be an increasing need to foster, appropriate to their age, the same kind of moral and social restraints and expectancies as in adolescence. For this reason, and for proper emotional and social adjustment, it is absolutely necessary that sexually precocious children receive full and frank sex information appropriate to their mental and social maturity. The proper focal point for this, together with emotional, social and cultural aspects that accompany it, is in the family setting. In our present case, the child is particularly fortunate in that the parents and teachers co-operate closely, and the family and community setting are ideal for optimum development.

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*Wilkins (1962) quotes the most famous case of a Peruvian girl who menstruated at 8 months and gave birth to a 6·5 lb. boy at 5·5 years.

SUMMARY

Previous studies of precocious puberty have dealt with somatic aspects of development with less emphasis on psychological data. This paper describes the development of a girl of grossly accelerated puberty from ages 3 months to 10·5 years. This longitudinal study deals principally with her intellectual, emotional and social growth in the home, school, and community setting as well as with physical and pubertal development. This case provides data for evaluating the effect of her accelerated puberty upon adjustment to her environment and upon her psychosexual behaviour. The possible interaction between accelerated puberty and other aspects of her development is explored. Finally, implications for guidance and management of such cases is discussed.

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SOME DIFFERENCES IN INFANT FEEDING AND ELIMINATION TRAINING IN FIVE EUROPEAN LONGITUDINAL SAMPLES

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INTRODUCTION

The purpose of this paper is to present some simple data and curves of incidence regarding infant feeding and elimination training practices in samples of children in Brussels, London, Paris, Stockholm and Zurich, which have been studied by similar longitudinal methods in the growth studies co-ordinated by the International Children's Centre (Falkner, 1960). On the psychological aspect of the enquiries, collaboration extends to the use of similar interview questions, testing methods, and criteria of assessment (Hindley, 1960b). Equally, common methods are used for the assessment of physical growth (Falkner, 1960) and of social class background (Graffar, 1960b). The system of coding data for punched card analysis has been described by Karlberg and Ferrel (1960).

Interest in differences in child-upbringing sprang particularly from the works of such cultural anthropologists as Malinowski (1927), Benedict (1935), and Mead (1935). More recently Whiting and Child (1953) have used the Yale index of information on primitive societies, for comparative studies of rearing practices, and their relationships to adult attitudes. Such studies, as is generally acknowledged, have made a most valuable contribution, but they are not without quite serious methodological limitations. The method usually involves seeking information on many different aspects of the life of a community, by a mixture of interviewing and observation. What is lacking is a systematic sampling of the population concerned, and the application of standard methods of assessment to each individual.[††] The resulting picture of a society therefore depends very largely on the qualities of the investigator, and in view of the extent to which "clinical impressions" of an advanced population often have to be revised in the light of more systematic enquiries, one can be forgiven for some uncertainty as to how typical are the reported patterns.

Since the early anthropological studies psychologists and others, in increasing numbers, have turned to the investigation of differences within advanced communities, by means of systematic methods. In the U.S.A., following the enquiry of Davis and Havighurst (1946) in Chicago, there have been other general studies in

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[††] The recent studies of B. Whiting (1963) and Minturn and Lambert (1964) go a considerable way to remedying these shortcomings, though the samples are small.

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Boston (Maccoby *et al.*, 1954, Sears *et al.*, 1957), California (Littman *et al.* 1957), and Detroit (Miller and Swanson, 1958). In Britain, Douglas (1950) and Douglas and Blomfield (1958) have reported on breast-feeding and toilet-training methods for their national sample, and Newson and Newson (1963) have made a more general study in Nottingham.

Davis and Havighurst reported significant tendencies towards more breast-feeding and later toilet-training among "lower-class" as compared with "middle-class" mothers. However, the later American studies show class differences which are small, or slightly in the opposite direction (Bronfenbrenner, 1958, Havighurst and Davis, 1955).

Apart from such more general studies, the incidence and duration of breast-feeding have received a great deal of attention by many investigators. The literature has been reviewed by Newton and Newton (1951), Hytten and Thomson (1955) with particular reference to Britain, Mellander *et al.* (1959), and Sand (1961).

Bronfenbrenner (1958) in his extensive review of American studies has compared the findings in terms of social class, geographical location, and decade. While it shows certain social class trends, and evidence of historical changes in practices, the resulting picture remains rather confused because of the different methods and criteria used, and the unavoidable confounding of social class differences with those attributable to geographical and historical factors. A further and rather fundamental weakness of many of the studies is the reliance on retrospective reports over intervals of several years.

The present data have the virtues of being collected by essentially similar methods, of employing the same criteria, and of relying only on mothers' short-term memories (Hindley 1960a and b). Because of the reasonable accuracy of the information it has also seemed useful to examine the nature of the distributions in some detail.

It must be conceded that none of the samples conform to the desirable model of random or representative sampling of a population, as co-operation of the parents is a necessary condition. However, evidence is presented which suggests that four of the samples, at least, are moderately typical of the cities from which they come.

The results which follow not only reveal very considerable differences in these aspects of child-rearing in the five western European cities, but also that the correlations with social class are by no means the same in the several samples.

COMPOSITION OF THE SAMPLES

The samples consist of children taking part in the five longitudinal studies. In all cases, they were born in large cities, though they may have subsequently moved to the periphery, or in some cases to the country. Attempts were made at each centre to recruit children as representative as possible of the local population, but this was inevitably limited to some degree by availability, and by the co-operativeness of mothers.

Details concerning each sample are given as follows.

Brussels. (Graffar 1958)

From weekly lists of registered births in the commune of Saint-Gilles, a random sample of mothers was approached between May 1955 and July 1957. Approximately 50% consented to co-operate in the study. The 251 resulting children represented about 20% of all births in the commune during the period of recruitment.

Fortunately, the longitudinal sample could be compared in social composition with an 80% sample of the children born in the commune in one year. The following significant differences were found in the longitudinal sample: higher global socio-economic scores ($p <0{\cdot}02$), higher professional status ($p <0{\cdot}02$), higher educational status of the parents ($p <0{\cdot}001$), higher standard of accommodation ($p <0{\cdot}001$), and a smaller range of quality of neighbourhood ($p <0{\cdot}05$). There were no significant differences in age of parents, nor of number of children in the family. Since recruitment there has been a slight tendency for losses to be greater in those of lower socio-economic status (Graffar 1960).

London. (Moore *et al.* 1954)

Names of expectant mothers using the National Health Service were collected from ante-natal clinics and hospitals covering a defined area of Central London. Thus a small number of mothers attending private doctors, and hospitals outside the area, were excluded. All mothers on the lists during four 3 month periods were approached, and of 272 eligible, 50 (18%) declined to co-operate. The children were born between November 1951 and May 1953. The resulting sample was roughly similar in paternal occupations to that of the London Administrative County (Registrar General 1953) but differs with borderline significance ($p <0{\cdot}10 >0{\cdot}05$) in the direction of under-representation of the lowest social group. 50 of the 222 cases (22·5%) were lost by 4 years, more often among children with younger mothers ($p <0{\cdot}02$), mothers of lower occupational status ($p <0{\cdot}01$), and living in poor dwellings ($p <0{\cdot}02$).

Paris.

Mothers living in a defined area of Paris (Arrondissement 14), and whose pregnancy was supervised by any of five maternity clinics of the Assistance Publique, were approached regarding co-operation after the birth of their babies. About half agreed to do so. In addition, small numbers were recruited by social workers, and a few siblings at the request of parents. The majority of children were born between March 1953 and March 1955, and all recruitment was stopped by June 1960. Altogether 588 children were enlisted, but by June 1964 the numbers had fallen to 248. It has not been possible to compare the social composition of the sample with that of Paris or the Arrondissement. However, losses were not greatly related to social class, except that social class 2 was slightly more cooperative than the rest.

Stockholm. (Karlberg *et al.* 1964)

The sample was drawn from Solna, a suburban community of Stockholm, between January 1955 and April 1958. Apart from a small pilot group, every fourth expectant mother attending the ante-natal clinic for the area was approached. Only 3% refused to co-operate, and of the initial 212 children, only 3 had left the sample by April 1961, in all cases on account of leaving the district.

Comparison of the sample with the population of Stockholm was possible on a number of variables, and despite the omission of expectant mothers attending private doctors, little difference was found.

On occupational and socio-economic status there was almost an identical composition to that of all Stockholm families with children. There were slight tendencies towards younger parents as compared with Stockholm, but the 10·8% of unmarried mothers was close to the Stockholm figure. Departures from the Swedish means of birth weight and gestational age were small.

Zurich.

From the birth registers of two clinics covering the area of the research centre, mothers who lived within 2·5 km were invited to participate. Only children of Swiss nationals were accepted. 607 mothers were approached, and 413 newborn children were recruited during 1954 and 1955.

Comparison of the composition of the sample, in terms of fathers' occupations, revealed little difference from the official statistics for Zurich as a whole.

It is clear that the samples differ in the extent to which they may be regarded as typical of their parent populations. The Stockholm sample, in which there were very few refusals to co-operate, stands out as the most satisfactory. The other samples are affected to greater, but varying, degrees by selective sampling and selective losses. Hence, some caution is necessary in generalizing from trends within such samples to their parent populations, and in regarding differences between the samples as representative of population differences. This applies less in instances where a particular practice is shown not to be related to social class, although the cooperation factor remains.

ASSESSMENT OF SOCIAL CLASS

The social composition of the samples has been assessed by a method developed by Graffar (1956, 1960b). Families are given a 1 to 5 score on each of four criteria (omitting one of Graffar's five), in each case according to the highest category (lowest number) attributable to either parent. The four sub-scores are added, and based on these overall scores, cases are allocated to one of five overall social class grades (Table 1). Despite the use of descriptive definitions, there are difficulties in applying the criteria in uniform ways in the several studies. For example, the grading of housing standards is inevitably influenced by prevailing levels in the local population. More confidence can therefore be placed in consistency of assessment within samples. Again, one criterion may have a different significance in different communities. Thus, families of otherwise similar socio-economic level may typically enjoy a higher standard of accommodation in one city than in another, or a particular occupation may have a different social valuation. Such discrepancies will tend to diminish the validity of the global social scores. Accordingly, it can be expected that measures of association between social scores and other variables within a sample will be *underestimated*.

TABLE 1. THE CRITERIA OF SOCIAL CLASS GRADES

Social Class Grade		*Criterion*			Overall score
	Occupation	Source of income	Education	Housing	
1	Professional, etc.	Unearned	University or equivalent	Luxurious	4–7
2	Intermediate, etc.	Profits, fees	Higher secondary or technical	Spacious, very comfortable	8–10
3	Skilled	Salary: annual or monthly	Lower secondary or technical	Modest but satisfactory	11–13
4	Partly skilled	Wages: weekly, hourly, etc.	Legal requirements only	Intermediate	14–16
5	Unskilled	National Assistance, etc.	Below legal requirements	Slum-like	17–20

Social class scores of the samples

In the comparisons which follow, numbers of cases vary somewhat, owing to some gaps in the data, and some of the studies do not have information available on certain items.

Most of the available children are included in the comparisons of duration of breast-feeding. Here, the differences in social composition of the samples (Table 2) are highly significant ($P < 0{\cdot}001$). The main features are the predominance of children in classes 4 and 5 in the London, Paris and Stockholm samples, as compared with a predominance of class 3 in the Brussels and Zurich samples, and a very small number in classes 4 and 5 at Zurich.

In the light of these differences, and of the different degrees of representativeness of the samples, when direct comparisons are made between them on child-rearing variables, account must be taken of the interaction of social class scores and the variable in question.

METHOD OF ASSESSMENT OF CHILD-REARING VARIABLES

In all the samples mothers were interviewed by psychologists (except at Paris and Zurich where paediatricians and social assistants were used) by means of a standard procedure (Hindley, 1960b) at 1 month (6 weeks in London), 3 months, 6 months, 12 months, 18 months, 24 months, and annually thereafter.

The information used here is as follows:

1. *Age of last breast-feed.*
2. *Age of last use of bottle*—for any purpose.
3. *Age of first attempt at toilet-training*—first holding out of baby, or putting on a pot.
4. *Age of beginning regular continuous toilet-training.* The criterion was that age from which training attempts occurred at least once a day, and were never subsequently abandoned.

RESULTS

1. *Duration of breast-feeding*

Form of incidence curves. The curves in Fig. 1 show the numbers of children still receiving any breast-feeds, during the course of the first year. All the curves are relatively smooth, indicating steady changes in the rate of weaning, except that of Zurich with its unusual zig-zags. This appears to be partly a reflection of the system of benefits which mothers receive for breast-feeding, but which cease by 15 weeks.

The curves of Stockholm, London and Zurich have a low rate of fall in the first 10 days, suggesting continuing efforts to establish breast-feeding. Thereafter, those of London and Zurich accelerate steeply indicating a high rate of weaning, which has been present from birth in the Brussels and Paris samples. From ages varying between 10 days and 2½ months these four curves begin to decelerate and weaning occurs at a more gradual rate. The Stockholm curve differs in following almost a linear trend from 3 weeks to 9 months.

Components of the Curves. As a basis for further understanding the nature of the curves, attempts were made to see whether they conformed to any simple mathematical functions. From Fig. 1, one would suspect that the Stockholm curve roughly approximates to a reversed cumulative normal type distribution, or ogive, and that the other curves depart from such a function in varying degrees.

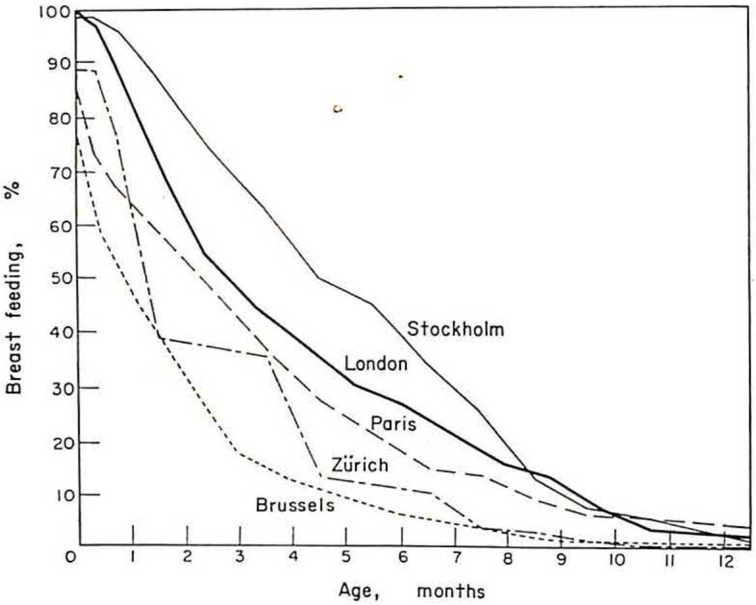

FIG. 1. Duration of Breast-Feeding in the Five Samples: percent still breast-feeding at each age.

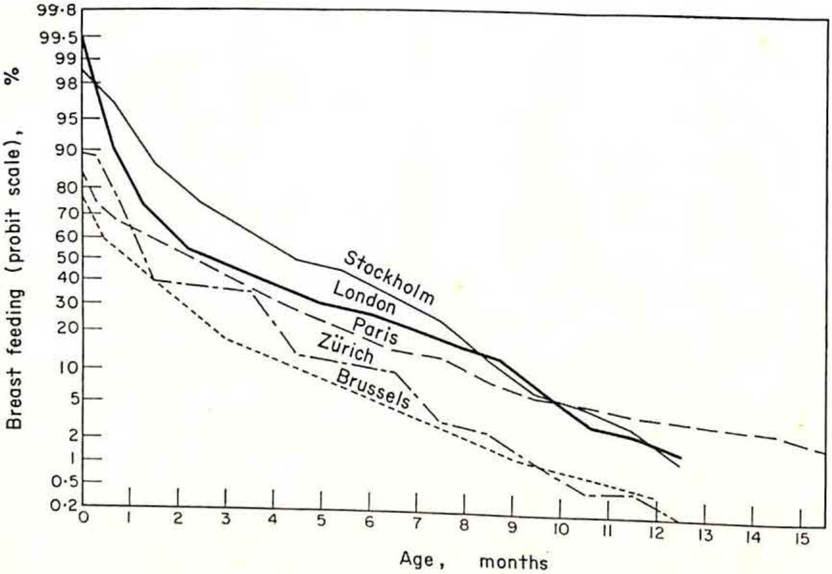

FIG. 2. Duration of Breast-Feeding in the Five Samples: percent still breast-feeding at each age, plotted on probit scale.

In Fig. 2 the curves are plotted on normal probability paper on which a cumulative normal distribution assumes a straight-line form (Finney 1952, Martin 1958). It will be seen that from points which lie between about 1 month and 2½ months each curve assumes approximately a straight line (with the exception of the Zurich curve, which again shows irregularities), suggesting that from these ages we are dealing with a normally distributed function.

The initial parts of the curves clearly do not conform to this function, being of a decelerating, exponential form. If the straight lines were projected backwards, they would imply a level of breast-feeding considerably lower than what is actually found in the early weeks. The different nature of the early parts of the curves was confirmed, by finding that they assumed an approximately linear form, when plotted on normal probability paper, this time against the *logarithm* of age. They therefore appear to conform to a function which is normally distributed in terms of log age.

Accordingly, the original curves (Fig. 1) appear to embody two components, each of which is normally distributed—and therefore depends on many factors (Kendall, 1945)—but which is related to age in different ways.

Significance of the curves. The foregoing analysis strongly suggests that two different types of phenomena are involved. The first component of the curves would express a tendency to wean, which quickly reaches a maximum in the early weeks and then diminishes. The strength of this tendency could be regarded as the resultant of the mother's wish and degree of determination to breast-feed, on the one hand, and the infant's response and the physiological difficulties of establishing breast-feeding, on the other. The two types of factors can obviously be expected to interact, but in general the less keen the mother is to breast-feed, the smaller the difficulties which will prompt her to abandon it. The importance of mothers' attitudes has been made clear by the work of Newton and Newton (1950a), Emery-Hauzer and Sand (1962). The second component would represent a tendency to wean among mothers and babies when the first hurdle had been overcome, and breast-feeding had been established. This distinction receives further support from the work of Douglas (1950), and Hytten and Thomson (1955), each of whom found differences in the maternal factors which correlate positively with incidence of breast-feeding in the early weeks, as compared with later.

Differences between the samples. Owing to the non-normality of the curves, differences between them were tested by the non-parametric Kolmogorov–Smirnov test (Siegel, 1956). Each curve differs very significantly from every other ($P < 0{\cdot}001$ in all instances). The extent of the differences is shown in graphic form (Fig. 1) and in terms of medians and percentiles (Table 2).

To begin with, there are big differences in the numbers of mothers who attempt breast-feeding. Virtually all mothers do so in the London and Stockholm samples (Fig. 1), whereas in the others considerable numbers never attempt it: Zurich 11%, Paris 14%, Brussels 23%.

Overall differences in the distributions are perhaps shown most clearly in the median ages of weaning (Table 2), which vary between 0·92 months in the Brussels sample to 4·50 months in the case of Stockholm. The 25th and 75th percentiles show the same trend.

Not only are there differences in numbers attempting breast-feeding and in the general prevalence of breast-feeding, but also in the *rate* at which breast-feeding is abandoned in the early weeks. The London and Stockholm samples begin with a similar level of breast-feeding, but the London mothers show a much more rapid fall-off, at a similar rate to that among the Brussels mothers (Fig. 1), and at a higher

TABLE 2. PERCENTILE OF AGE OF LAST BREAST-FEED, BY SAMPLE AND SOCIAL CLASS

			Percentile (in calendar months)			Significance of Class differences*	
Sample	Social Class	*N*	*p* 25	*p* 50	*p* 75	χ^2	*P*
Brussels	1 & 2	52	0·069	0·893	2·688		
	3	101	0·113	1·250	2·750	8·445	<0·70 >0·50
	4 & 5	61	0·000	0·750	2·065	(*df*.10)	
	Total	214	0·053	0·919	2·508		
London	1 & 2	29	1·962	5·077	7·692		
	3	54	1·651	3·692	6·824	12·250	<0·30 >0·20
	4 & 5	100	1·109	2·281	4·817	(*df*.10)	
	Total	183	1·202	2·712	6·254		
Paris	1 & 2	40	0·025	1·583	4·438		
	3	110	0·223	1·688	4·406	10·645	<0·30 >0·20
	4 & 5	169	0·467	2·833	5·385	(*df*.8)	
	Total	319	0·334	2·329	4·963		
Stockholm	1 & 2	52	4·313	6·364	7·975		
	3	68	2·160	4·182	7·179	19·084	<0·05
	4 & 5	91	2·167	3·885	7·500	(*df*.10)	
	Total	211	2·420	4·500	7·540		
Zurich	1 & 2	87	0·978	3·250	4·500		
	3	207	0·752	1·204	3·811	20·953	<0·001
	4 & 5	25	0·390	0·900	1·800	(*df*.4)	
	Total	319	0·756	1·279	3·979		

Social Composition of Samples: χ^2 197·01, *df*.8, $P < 0·001$

*The χ^2 test was performed on numbers never breast-feeding and on those weaning between specified ages, at monthly intervals in the main, but at shorter intervals in the first 2 months. In order to retain maximum degrees of freedom, combinations of age of weaning groups were only made where this was essential. Different *df*.s result from the nature of the distributions.

rate than that among the Paris mothers, where a smaller proportion began breast-feeding.

There are also big differences in the extent to which the two components of the curves (Fig. 2) apply. About 75% of the Stockholm sample are included in the normal part of the distribution (indicated by the straight part of the curve), which is presumed to apply to weaning among cases of established breast-feeding. Contrariwise, this applies only to about 20% of the Brussels sample, indicating that only the tail-end of the distribution is normal.

Association of breast-feeding and social class. Data for the three social class groups, according to the Graffar social scores, are presented separately for each sample, in terms of duration of breast-feeding at the 25th, 50th and 75th percentiles (Table 2).

Significant associations with social scores are to be found in only two of the samples, Stockholm ($P < 0{\cdot}05$) and Zurich ($P < 0{\cdot}001$). In both samples the tendency is for weaning to be later in the higher social class groups, and in both cases it is the upper group alone which is responsible for the difference,* insofar as the remaining two groups do not differ significantly from each other (Stockholm: class 3 vs. 4 and 5, $P > 0{\cdot}98$; Zurich: class 3 vs. 4 and 5, $P > 0{\cdot}50$). The London figures show a suggestion of the same trend, but quite insignificantly so ($P > 0{\cdot}20$). In contrast, those of Brussels† and Paris do not even give a hint of this.

Typicality of results

Brussels

Sand (1961) notes that few Belgian studies have been done, but that the results are similar to those of Tuyns and Landrain (1950) for the entire province of Brabant. The latter authors found that differences were more on religious lines than rural-urban, or use of private as against public facilities. Breast-feeding occurred less frequently, and for a shorter time, in those parts of the country with a higher proportion of Roman Catholics.

London

Median age of weaning is of a similar order to that obtained in a national sample by Douglas (1950). Findings regarding association of duration of breast-feeding with social class are somewhat contradictory. Positive results were obtained by Douglas (1950) on the national sample, and by Baird and Illsley (1953), Westropp (1953), Hytten and Thomson (1955), in particular towns. Spence *et al.* (1954) obtained doubtful results, and Dykes (1949) negative results, again in particular towns. It seems likely that there are inter-town differences in this association.

Paris

Lepage and Dufour (1955) reported 9% of mothers attending one of the clinics used in the present study as not attempting breast-feeding. However, the figures vary considerably from clinic to clinic, and no population estimates are available. In 1952 in the Seine Department 30% of mothers had weaned by 1 month, and 49% by 3 months (Alison and Lacambre, 1953). The earlier ages in the present sample may reflect the secular trend to earlier weaning (Hartemann, 1961). Studies of association with social class, with restricted samples, give contradictory results, though there appears to be less breast-feeding among those attending private, than public, clinics.

*Nordenfelt (1955) found significant relations between duration of breast-feeding and both social class and mother's age, in a sample of 4003 cases registered at Stockholm Child Welfare centres in 1950. A more detailed analysis of the present Stockholm data (Klackenberg, 1964) revealed that the social class difference only applied to mothers aged above 25 years, and not at all to those younger than this. Further, the age effect only occurred among mothers of higher social class (groups 1, 2 and 3) and not among groups 4 and 5. These results imply an interaction of age and social class effects. This possibility has not been systematically taken account of in the present paper, but Kruskall–Wallis analyses of variance (Siegel, 1956) within each of the social class groups 1 and 2, 3, 4 and 5, revealed no significant relationship of age of weaning to maternal age in the London sample. This would suggest that the Stockholm findings may possibly reflect regional rather than general phenomena.

†Sand (1961) found a significant tendency for class 3 mothers to breast-feed more at 1 month and 2 months *among* 126 mothers (59% of the Brussels sample) who had breast-fed beyond 15 days. This does not affect the overall conclusion.

Stockholm

Unfortunately official statistics for the 92% of Stockholm infants who visit Child Welfare Centres are based on the numbers fully breast-fed at each age, rather than on the age of last breast-feed used here. However, these statistics suggest a similar order of duration. Thus in 1957 44% were still fully breast-fed at 4 months. As in any case the present sample departs very little in social indices from Stockholm as a whole (Karlberg *et al.*, 1964), the results may be taken as representative.

Zurich

The studies of Willi (1950), and Baerlocher and Berger (1962), used different criteria, so a direct comparison is not possible.

Discussion. It is very clear from the foregoing results that the samples differ widely in: proportions of mothers attempting breast-feeding; tendency to wean in the early weeks; duration of breast-feeding; and presence or absence of an association between duration of breast-feeding and social class assessments. With regard to the latter, despite doubts about the representativeness of certain of the samples, one may reasonably conclude that any tendency for the duration of breast-feeding to be associated with social class is not a general one, even within western European cities.

Although, as mentioned earlier, the samples differ considerably in social composition, this does not account for the obtained differences between them in duration of breast-feeding.

In the first place in three of the samples there is no significant association with social class. Looking at the two which show such associations (Table 2): each social group in the Stockholm sample has a substantially higher median score than similar groups in any of the other samples; yet the Zurich sample, which has the highest proportion of class 1 and 2, who tend to feed longer, is second only to Brussels in brevity of breast-feeding. Furthermore, the Brussels sample contains a similar proportion of classes 1 and 2 to that of Stockholm, yet the two samples occupy extreme positions with regard to duration of breast-feeding. Thus we may conclude that the general cultural influences are greater than the within-sample social-class differences.

Possible explanations of the differences may be sought in any of the necessary (and interacting) conditions for successful breast-feeding, which include adequate anatomical and physiological equipment of mother and baby; appropriate skills on both their parts; positive attitudes on the part of the mother; and a social situation which favours it.

Among the physical factors, immaturity of infants hardly needs consideration, as premature infants were excluded from the samples. Duration of breast-feeding has been shown to be related to the health, height, and physique of mothers (Baird and Illsley, 1953; Hytten and Thomson, 1955) within social class groups. In a representative national British sample Douglas (1950) found little association with birth order of the child, and no significant association with age of the mother, after standardization for birth order and social class. Hytten and Thomson (1955) provide evidence that association with maternal age may be complex, in that a higher proportion of younger mothers were breast-feeding at the end of the puerperium, but a higher proportion of older mothers continued breast-feeding after the age of 1 month.*

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* This may partly account for the Stockholm finding (footnote * p. 187) insofar as most of the Stockholm mothers breast-feed beyond 1 month.

Where there are appreciable differences in mothers' physical condition in a sample, it is to be expected that those of higher social class will tend to have better health and physique (Baird and Illsley, 1953; Hytten and Thomson, 1955).

It is difficult, however, to believe that these kinds of factors are responsible in any substantial way for the present inter-sample differences. Thus, significant social class differences in duration of breast-feeding are lacking in the Brussels, London and Paris samples, but there is no reason to suppose that there are greater social-class differences in maternal health in the Stockholm and Zurich samples, nor again, as Sand (1961) has pointed out, that the Brussels mothers are vastly inferior in physical qualities to those in the other samples. Indeed, a rather high proportion of the Brussels mothers never even attempt breast-feeding. Further, while it may not be very surprising that Bain (1948) and Meyer (1958) found very wide differences in the prevalence of breast-feeding in different parts of a country so large as the U.S.A., the British study on a national sample (Population Investigation Commission 1948) revealed differences of a similar order within a small country. The authors concluded that varying social conditions did not adequately account for their results, remarking on many instances of prosperous local authorities having low rates of breast-feeding and poor authorities having high rates.

In the British national sample (*op. cit.*) breast-feeding was not related to whether mothers worked in pregnancy, but the duration of breast-feeding was less in mothers who were working when the child was aged 2 years (Douglas, 1950). Unfortunately there is no evidence regarding a direct connection between early working and early weaning. In the present samples this does not appear to have been a major factor. Thus, in the London sample although with borderline significance mothers who began work by age 6 months tended to wean earlier ($P < 0\cdot10 > 0\cdot05$), only 14% of mothers did in fact work (and in nearly all cases part-time). In the Paris sample 16% worked outside the home, by this age, and 10% in the Stockholm sample. Exact figures are not available for Brussels and Zurich, but the level was probably no greater.

We are left therefore with two kinds of factors, the community services provided, and the mothers' attitudes towards breast-feeding. The effects of adequacy of ante-natal care on duration of breast-feeding in Britain were clearly shown by the Population Investigation Commission (1948). It is likely that some of the effects of this result from the fostering of favourable attitudes towards breast-feeding, while more specifically care of the breasts can have a marked effect (Waller, 1957; Blaikley *et al.*, 1953). In this connection it is worth comparing the facilities available to the different samples.

Brussels

Free ante-natal care is available, and is used by 62% of the population, the rest using private obstetricians. The Oeuvre Nationale de l'Enfance has several well-baby clinics in each part of the city. They are free, and presents are given to mothers. Nurses pay a visit to all new-born babies and invite mothers to attend. About 65% do so, and others are visited by the nurses. Parents of social class 1, and some of social class 2, are more likely to visit private paediatricians. In general, breast-feeding is not specially encouraged.

London

The National Health Service provides free medical care on an insurance basis for the whole population. With few exceptions mothers in the sample attended ante-natal clinics from early pregnancy, usually monthly, or more frequently. Health visitors visit all new-born babies, and invite mothers to bring them to infant welfare centres. Approximately 65% of mothers do so (Population Investigation Commission 1948). Breast feeding is encouraged both at ante-natal and child welfare clinics.

Paris

In France mothers are obliged by law to make three ante-natal visits, in the 3rd, 6th and 8th months, either to a public clinic, which is free, or to a private doctor. Few mothers fail to comply, because they are given a monthly allowance of money following their attendance. Following birth, the services of Protection Maternelle et Infantile are available without charge. Again, regular attendance at their clinics, or at a private doctor's, entitles mothers to monetary benefits, which are substantially higher if they breast-feed rather than bottle-feed.

Stockholm

Free medical care is available for pregnant mothers and children. Roughly 65% of mothers attend public ante-natal clinics, and most of the rest use private obstetricians. 98·5% of Stockholm children are born in hospitals, where advice and encouragement is given on breast-feeding. Child welfare clinics are visited 4 or 5 times in the first year by 92% of Stockholm infants, and breast-feeding is encouraged.

Zurich

25% of pregnant women attend polyclinics, at a small charge. The remainder either visit private doctors, or have no ante-natal care. No special encouragement to breast-feed is given ante-natally. 98% of births take place in hospital, where breast-feeding is encouraged. After birth, mothers are informed of the well-baby clinic facilities which are available for regular use after one small payment. The majority of mothers, and especially the primiparae, use the clinics, at which advice is given on feeding, vitamins, vaccinations, and psychomotor development. Breast-feeding is encouraged by the clinics, and this is reinforced by a private insurance system of benefits for breast-feeding, which continue up to between 10 and 15 weeks.

From the above information, there appears to be no simple connection between duration of breast-feeding and the availability and use of ante-natal services. Thus the proportions of mothers using the public ante-natal services are above 60% in the Brussels, London and Stockholm samples, but the duration of breast-feeding differs markedly. There is a suspicion of some connection with the proportion of mothers using infant welfare services, highest in Stockholm—with its longest duration of breast-feeding. However, the proportions appear to be very similar in the Brussels and London samples, with marked differences in the duration of breast-feeding.

Again, while there seems to be some association between duration of breast-feeding and the degree of encouragement given by the clinics and services, the direct financial benefits available to Paris and Zurich mothers are not sufficient to raise their level of breast-feeding to that of Stockholm mothers. More light would undoubtedly be thrown on the role of the services provided, if it had been possible to make a detailed study of the attitudes of clinic staffs to breast-feeding, and of the techniques which they employed in preparation for it. The work of Waller (1957) suggests that details of technique of preparation of the breasts can be a very important influence.

Apart from the physiological capacity of mothers to breast-feed, and from certain obvious influences of material circumstances, the final determinant of duration of breast-feeding, itself affected by the services available, seems likely to reside in mothers' attitudes towards it. There is a good deal of evidence that these are not only related to the duration of breast-feeding in a particular sample (Newton and Newton, 1950a; Emery-Hauzer and Sand, 1962), but also to the physiological "let-down reflex" (Newton and Newton, 1950b).

However, the size of the differences between the present samples would point less to the range of individual differences of attitude to be expected in any one sample, than to the effects of a general cultural climate. In the Brussels region, as Sand (1961) has pointed out, breast-feeding does not appear to be highly favoured, whereas in the Stockholm sample, by contrast, it would be hard to conclude other than that mothers favour breast-feeding. The likelihood of breast-feeding having different significance in the different cultures, in the sort of way shown to apply to primitive communities by Benedict (1935), is strengthened by the presence of association between duration of breast-feeding and social class in some samples and not in others. On the assumption that higher social class groups are better able to breast-feed if they wish to do so, one would again conclude that breast-feeding is socially valued among the Stockholm sample, and not in the Brussels sample, and perhaps to intermediate extents in the others.

The curves of Figs. 1 and 2 also throw light on possibly conflicting attitudes of mothers and their professional advisers. The London curves show a high rate of starting breast-feeding, which is consistent with the strong "moral" attitudes in favour of breast-feeding among British midwives. That this cannot overcome the reluctance of a considerable proportion of mothers, which Hytten *et al.* (1958) have made clear, is revealed in the unusually great extent of weaning in the early weeks after an initial pause. In the other samples there would appear to be less conflict between medical and nursing staff and the mothers. Thus the Stockholm sample has a very high proportion of mothers attempting to breast-feed, and a high proportion who continue. The other samples, with their shorter durations of breast-feeding, also have smaller numbers of mothers attempting to breast-feed.

2. *Use of bottle*

In view of the short duration of breast-feeding in most of the samples, any estimation of the duration of sucking for food and/or drink must take account of use of the bottle.

Information is available on this from four of the centres. The numbers being compared are not identical with those in the preceding section, owing to a number of cases with inadequate information, particularly in the Paris sample.

TABLE 3. NUMBERS EVER USING BOTTLE

	London		Paris		Stockholm		Zurich	
	N	%	*N*	%	*N*	%	*N*	%
Never used bottle	11	6·01	2	0·81	43	20·48	12	3·92
Used bottle	172	93·99	245	99·19	167	79·52	320	96·08
Total	183	100·00	247	100·00	210	100·00	332	100·00

$\chi^2 = 79{\cdot}29$ d.f. 3, $p < 0{\cdot}001$

Incidence. While most of the children in each of the samples had experience of the bottle, there were significant differences between them (Table 3), mainly reflecting the lower incidence of 80% in the Stockholm sample against well over 90% in the other three. Even in the case of Stockholm, however, there was no significant association of use of bottle with social class ($P < 0{\cdot}30 > 0{\cdot}20$).

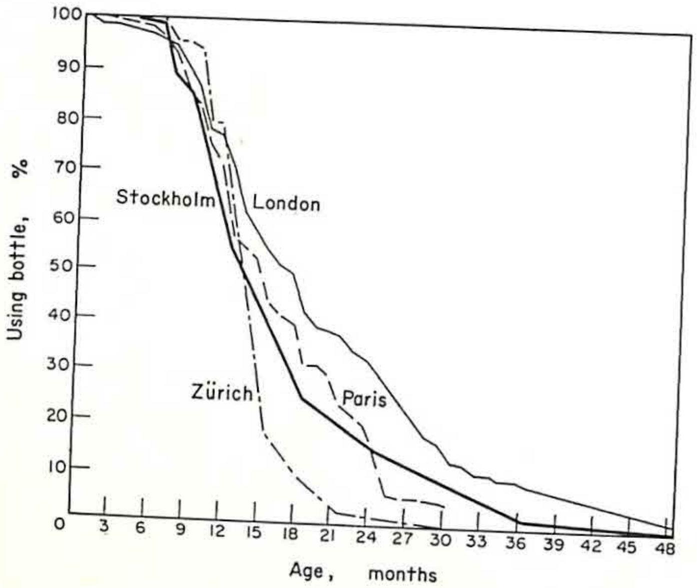

FIG. 3. Age of Last Use of Bottle in Four Samples: percent (of those ever using) still using bottle at each age.

Form of the weaning curves. The incidence of use of bottle at different ages for the four samples (among those ever using) is presented graphically (Fig. 3). Each curve displays a gentle gradient initially, which probably represents abandonment of temporary rather than of established use of the bottle. This is followed by a period of weaning at a high rate, ending with a further levelling off. A suspicion that the curves are following some simple ogive function is strengthened by a plot of incidence against logarithm of age on normal probability paper. The resulting curves all conform fairly closely to straight lines, and in the case of the London sample, where complete figures up to 4 years enabled a statistical test, there was no significant difference from normality (χ^2: 23·13, *df.* 23, $P > 0{\cdot}30$).

Thus, weaning from bottle appears to follow a simple normal ogive function, in terms of the logarithm of age. Why this process should be related to *log age* and the major part of the weaning from breast curves be related to *simple age*, is a matter for speculation. It is to be noted that there is no need to postulate two components to the curves, as was the case with weaning from breast. This may well reflect lack of difficulty in establishing use of the bottle in most infants, so that the curves represent simply the weaning process among established users of the bottle.

Differences between samples. Comparisons are more straightforward than in the

TABLE 4. AGE OF LAST USE OF BOTTLE (OF THOSE EVER USING): MEDIANS, QUARTILES, AND ASSOCIATION WITH SOCIAL CLASS

Sample	N	Percentiles (in calendar months) p 25	 p 50	 p 75	Q	Significance of social class differences* χ^2	 P
London	172	11·77	17·54	26·10	7·17	13·08 (*df*.8)	<0·20 >0·10
Paris	245	10·65	14·79	21·32	5·34	8·45 (*df*. 6)	<0·30 >0·20
Stockholm	167	10·10	13·36	18·41	4·16	12·84 (*df*. 8)	<0·20 >0·10
Zurich	320	11·75	13·29	15·02	1·64	10·85 (*df*.6)	<0·10 >0·05

*Different degrees of freedom were involved, depending on the distributions.

case of breast-feeding, because in none of the samples are there significant associations of duration of use of bottle with social class (Table 4). Although logarithmic transformations appeared to normalize the distributions, owing to differences in the number of data points available, differences between them were tested by the Kolmogorov–Smirnov test (Siegel, 1956). All differences were significant, except that between Paris and Stockholm (Table 5). Zurich showed the earliest median age of weaning, followed by Stockholm, Paris and London. This compares with the order for weaning from breast of Zurich, Paris, London, Stockholm. Thus, although the Zurich sample was earlier in stopping both forms of sucking feeding, the positions of the other samples do not remain consistent.

TABLE 5. SIGNIFICANCE OF DIFFERENCES BETWEEN CURVES OF INCIDENCE OF WEANING FROM BOTTLE: P VALUE OF KOLMOGOROV–SMIRNOV TESTS (SIEGEL 1956)

	Paris	*Stockholm*	*Zurich*
London	<0·001	<0·025	<0·001
Paris		>0·10	<0·001
Stockholm			<0·01

Differences are also to be seen in the amount of variation in time of weaning within a sample. The very low semi-interquartile range ($Q = 1{\cdot}64$) of the Zurich sample (Table 4), and the steepness of the slope of its curve (Fig. 3), suggest a closer degree of conformity to a norm, than in the other samples. Although the Q values differ in the other samples, the slopes are much more similar in steepness (Fig. 3), and the differences probably largely reflect the well-known tendency for variability to increase with the mean age of a function.

Typicality of results. There is little available information.

London Newson and Newson (1963) report that 80% of the mothers who used a bottle (all but 11% of the total), were still doing so at 12 months in their Nottingham sample. This is very similar to the present figures, but their sample differs in that mothers of higher social class wean from the bottle at a younger age.

No comparative information is available for the other three samples.

Discussion. It is evident from the preceding results that the bottle is an integral part of the experience of the majority of children in the four samples. Although here we are concerned with any use of the bottle, in fact most of the children have had the bottle for milk as well as for other liquids, and it must be recognized as a major vehicle for satisfying the infantile oral drives to which psychoanalysts have so frequently called attention.

Weaning from the bottle, unlike weaning from the breast, is not complicated by the physiology and pathology of maternal milk production, and can only depend on mothers' attitudes on the one hand, and infants' response on the other. This probably accounts for the simple nature of the distributions.

In general, the present samples wean from the bottle rather later than those in the American studies compared by Havighurst and Davis (1955) and Bronfenbrenner (1958). As in the later American studies (Bronfenbrenner *op. cit.*) there is little evidence of social class differences, suggesting more homogeneity of attitude within each sample than was the case with breast feeding. This cannot be taken to be in any sense an inevitable pattern, as the earlier American study of Havighurst and Davis (*op. cit.*) revealed a significant tendency for lower social class mothers to wean later from the bottle, as did Newson and Newson (1963) in their recent study at Nottingham, England.

Comparing the samples for consistencies between breast and bottle feeding practices, the Zurich sample stands out as the one in which both breast and bottle feeding are terminated soonest. There is also much smaller variability within the sample as indicated by the value of *Q* (Table 4). This suggests a considerable degree of conformity among the mothers in adhering to a standard of early cessation of sucking to obtain liquids. There is more variability within the other samples, and there are discrepancies with regard to the two kinds of feeding. For example, mothers in the London sample who breast-feed for a much shorter time than those of the Stockholm sample, are apparently more prepared to indulge other forms of oral gratification.

3. *Elimination training*

Results on age of first attempt at potting, and of starting continuous regular toilet training, are available for the London and Stockholm samples, which are of almost identical social composition to those in Table 2. Information is also available from Paris on the start of regular training, for 275 cases.

Form of curves. The cumulative incidence curves (Fig. 4) assume a more linear form when plotted against the logarithm of age on normal probability paper (Fig. 5), implying, as was the case with weaning from the bottle, that the logarithms of ages of starting toilet training are roughly normally distributed. This applies particularly to the two London curves, and the Stockholm curve of regular training; more doubtfully to the Paris regular training curve; and not to the Stockholm curve of first attempts at training. It is perhaps not surprising that a curve of first attempt at potting—which may amount to no more than a very tentative trial which is not persisted with—should be less regular in form than one of regular training.

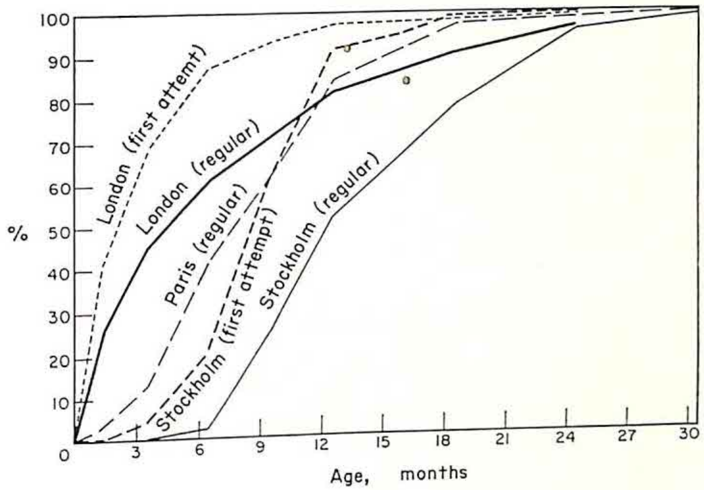

FIG. 4. Age of Starting Elimination Training in Three Samples: percent who had experienced first attempts, and regular training, at each age.

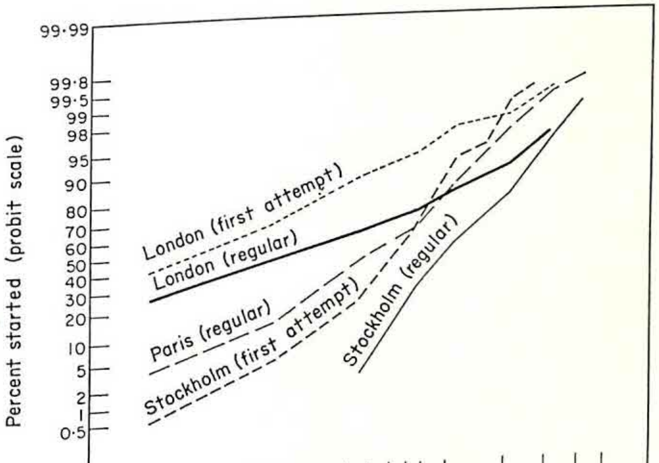

FIG. 5. Age of Starting Elimination Training in Three Samples: percent started by each age, plotted on probit scale of incidence against logarithmic scale of age.

Association with social class. In none of the samples was age of starting regular training significantly associated with social class scores (Table 7), and the same applied to age of first attempt at training in the Stockholm sample (Table 6). In the London sample, however, there was a significant tendency for mothers of higher social class to make their first attempts later (Tables 6 and 8). This could well represent their quicker response to the more permissive attitudes which have latterly become more fashionable, but apparently not in Nottingham (Newson and Newson, 1963). The London findings would be consistent with American experience (Bronfenbrenner,

TABLE 6. AGE OF FIRST ATTEMPT AT ELIMINATION TRAINING

Sample	N	Percentiles (calendar months) p 25	p 50	p 75	Significance of social class differences χ^2	P
London	182	1·11	2·21	4·59	15·68 (*df*.6)	<0·02
Stockholm	210	6·80	8·69	10·84	3·98 (*df*.6)	<0·70 >0·50

TABLE 7. AGE OF STARTING CONTINUOUS REGULAR ELIMINATION TRAINING

Sample	N	Percentiles (calendar months) p 25	p 50	p 75	Q	Significance of social class differences χ^2	P
London	183	1·49	4·60	10·59	4·55	7·61 (*df*.8)	<0·50 >0·30
Paris	275	4·77	7·81	11·28	3·26	11·20 (*df*.8)	<0·20 >0·10
Stockholm	208	9·50	12·36	18·65	4·58	10·17 (*df*.6)	<0·20 >0·10

1958), but it is rather surprising that it does not also apply to age of starting regular training.

Differences between samples. Differences between the curves of first attempt at training between the London and Stockholm samples (Fig. 4) are highly significant (Kolmogorov–Smirnov test, $P < 0{\cdot}001$), and all differences between the three curves of onset of regular training are likewise significant ($P < 0{\cdot}001$) in each case.

The extent of the differences is very striking, the median child of the London sample having his first experience of being tried with the pot at 2·2 months as against 8·7 months in Stockholm (Table 6), with very little overlap between the distributions. Much the same is true of the time of starting regular training, the London median age of 4·6 months comparing with 7·8 months in the Paris sample and 12·4 months in the Stockholm sample (Table 7). Variability within the London sample is much greater than within the other two, when account is taken of the low value of the median, as is most clearly shown by the slopes in Fig. 5. Despite the much greater scope for variation in the Stockholm sample, where the median value is far away from the 'floor' constituted by the time of birth, in fact there is a rather high degree of consistency to a norm. In this respect the Paris sample occupies an intermediate position.

TABLE 8. LONDON. AGE OF FIRST ATTEMPT AT ELIMINATION TRAINING BY SOCIAL CLASS*

Social class	N	Percentiles (calendar months) p 25	p 50	p 75
1 & 2	29	1·41	2·25	9·88
3	54	0·86	2·08	4·48
4 & 5	99	0·89	2·05	4·21
Total	182	1·11	2·21	4·59

*Significance of class differences: $\chi^2 = 15{\cdot}68$, $df. = 6$, $P < 0{\cdot}02$.

Typicality of results

London: There is not a great deal of comparable information available, but what there is suggests that these results are reasonably typical. Douglas and Blomfield (1958) state that 60% of their national sample "started to pot" their children by 6 months, but they draw no distinction between casual attempts at potting and regular training, and in any case rely on mothers' retrospective reports 6 years later. Newson and Newson (1963) also do not distinguish first trials and regular training, but report that 83% have started toilet training by 12 months. However, they also report a contrary social class difference, in which fewer of the class 5 mothers had begun training by 12 months. This may reflect differences between cities, or the small number of class 5 mothers in the London sample.

No comparative information is available for the Paris and Stockholm samples.

Discussion. Again, large differences are to be found between the three available samples. It is interesting that there is more general similarity with bottle-feeding than with breast-feeding. Thus, with one minor exception, age of starting toilet training is not significantly associated with social class, indicating generally accepted standards. Equally, the curves—especially those of onset of regular training—appear to conform roughly to one simple function, in which again the logarithm of age of the event is distributed normally. Here also is a process which depends on the attitudes of the mother and the responses of the child, uncomplicated by processes of maternal physiology.

In seeking reasons for the differences, it is not easy to disentangle mothers' attitudes towards cleanliness from their wishes to avoid unnecessary work. The Stockholm mothers mostly use paper diapers which are disposable and cheap whereas in London and Paris they are not commonly used—partly on account of expense, but partly because infant welfare clinics do not generally recommend them. Instead, cloth napkins, which require washing, are used.

Be that as it may, from the infant's point of view, elimination-training is something which figures in the life of the London child from an earlier age than is the case in Paris, and much earlier than in Stockholm. If he is in the London sample he is likely to be compensated by a longer period of bottle-sucking; if in Paris, both the elimination training will begin and bottle-feeding end, at intermediate points; while if in Stockholm, toilet training will start late, but sucking feeding will end rather early.

GENERAL DISCUSSION

The preceding results, limited as they are, emphasize the complexity of child-rearing patterns. Sewell *et al.* (1955) have already shown the low correlations between different aspects of handling in one sample. As between the present samples, not only may bottle feeding and elimination training practices be at diametrically opposed poles, so far as concerns indulgence towards the child, but there is often no clear consistency with regard to breast and bottle-feeding practices. The Zurich sample stands out for its consistency in these respects, and it is the more unfortunate that data on elimination training are not presently available.

Equally, associations of a practice with social class can apply to one sample but not another, as was strikingly shown in the case of breast-feeding; while one set of practices may show such an association in one sample, and a different set do so in another sample.

All this emphasises the need to treat reports of simple associations, in this field, as having only very limited application, until evidence exists to the contrary. As Hogben (1957) has cogently argued, human samples are uniquely located in both space and time and are affected by the historical sequence of events. Furthermore, when one is dealing with a complex of interacting factors in which it is not clear which are the dependent, and which the independent variables, it is often impossible to know the likely effects of historical or other changes in related variables (Hogben *op. cit.*). Such considerations underline the value of studies such as the present one, even though it is confined to a few simple variables. As has been argued previously (Hindley, 1960b), the only way of knowing the generality of the kinds of phenomena under review is by conducting enquiries at different places, and it might be added—at repeated time intervals. Conversely, if we wish to understand the nature of a given sample or population, we must study *it* rather than rely on generalizations.

Another aspect of the uniqueness of samples or populations is that a culture or sub-culture is patterned (Benedict, 1935), so that particular aspects of human life have a different significance, and different interrelationships in different cultures. It cannot, therefore, be assumed when a Brussels mother weans early, that this has the same connotation as when a Stockholm mother does so. In the latter culture breast-feeding is part of the accepted pattern of life, and failure to breast-feed is the more likely to imply unusual maternal attitudes; whereas in the Brussels culture—despite the evidence of a link between positive attitudes to the child and duration of breast-feeding (Emery-Hauzer and Sand, 1962)—it would be likely to have much less significance. The present findings therefore throw up many important questions for further investigation concerning the significance of breast-feeding, bottle-feeding, elimination training and other practices in relation to the whole of a culture, including its material circumstances, social organizations, welfare services, and conscious and unconscious attitudes.

The few soundings that we have been able to make here have nevertheless been sufficient to demonstrate that the differences between cultures which on the face of it are very similar, and which are in close geographical proximity, are much greater than those explicable in terms of different social class factors within a particular culture.

One direction in which a considerable degree of similarity from sample to sample has been demonstrated, lies in the form of the curves of age of finishing or starting the several practices. On single variables the samples differ relatively little as regards the nature of the curves, but greatly in the magnitude of the parameters. The tendency of the curves towards normality again underlines the multiplicity of factors on which they are likely to depend (Kendall, 1945). Why the major part of the breast-feeding curve should be related directly to age (Fig. 2) and those of bottle-feeding and elimination training to the logarithm of age, remains an intriguing question, which is likely to remain unanswered until more 'milestones' both of parental practices and of infant behaviour are studied in this way.

SUMMARY

Age of weaning from breast and bottle, and of starting elimination training are compared in relation to social class scores among longitudinal samples of children from Brussels, London, Paris, Stockholm and Zurich. Large differences are found between the samples in all these practices. Median ages of weaning from the breast range from 0·92 months in the Brussels sample to 4·5 months in the Stockholm sample; among four samples median ages of weaning from bottle range from 13·3 months in the Zurich sample to 17·5 months in the London sample; among three samples median ages of starting regular toilet training range from 4·6 months in the London sample to 12·4 months in the Stockholm sample. In general, differences between the samples are much greater than differences attributable to social class within samples. The forms of the incidence curves are examined. Curves of incidence of breast feeding appear to have two components, whereas the others appear to have only one. The significance of the findings is discussed in terms of the patterning of the several cultures.

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AUTISTIC REACTIONS IN EARLY CHILDHOOD: DIFFERENTIAL DIAGNOSTIC CONSIDERATIONS*

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THE term "autism" is frequently used today in the differential diagnosis of the severe emotional disturbances of early childhood. However, to label a child as "autistic" presents some formidable problems with regard to definition of the term, the specific etiological–diagnostic implications, and treatment considerations for any given child so designated. The purpose of this paper is to briefly review some of the historical psychiatric background of the term "autism", its more recent ramifications, and our clinical experiences in this field.

In 1906, De Sanctis described two young children who displayed developmental regression, purposeless activity, negativism, grimacing, and stereotyped motor activities (De Sanctis, 1906). He felt that their disorder was similar to, but distinct from, the entity of dementia praecox in adults as previously delineated by Kraepelin. By 1908, De Sanctis had added a subdivision to the previous group (dementia praecocissima catatonica) and admitted the analogy—as to symptomatology and outcome—between dementia praecocissima in children and dementia praecox in adults (Lay, 1938, p. 109). Bleuler (1911), in his classical re-evaluation of the concept of dementia praecox, referred to "autism" as one of the primary symptoms of his conceptualization of the syndrome of schizophrenia. He viewed autism as a disturbance of consciousness in which there was a detachment from reality with a predominance of the inner life. It must be stressed that Bleuler related his concept of "autism" primarily to a form of thinking, whereas many of the current concepts of "autism" commonly include both thinking and particular types of behavioral relationships (especially withdrawal).

In a later contribution, De Sanctis reviewed his clinical experiences with mutism in childhood by describing seven different syndromes wherein mutism was a prominent feature. One of these syndromes ("phrenesthenia paretico-aphasica tardiva") was initially described as being of postnatal onset and *not* a dementia (Lay, 1938, p. 110). However, by 1924 De Sanctis, following further clinical experiences with this entity, did describe it as a dementia, and ascribed its etiology to a cerebral sclerosis. This particular syndrome consisted of "A gradual loss of speech, excitement, and weakening of intelligence, with defective ability for attention, but the maintenance of an intelligent facial expression" (Lay, 1938, p. 110). This particular syndrome thus displayed some of the behavioral (rather than thinking) aspects of the later concept of autism. Interestingly, the clinical features and course

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of this particular syndrome of mutism in childhood, closely simulated the disorders described by Weygandt and Heller in the first decade of this century (Dietze, 1963).

In 1933, Potter's clinical report (Potter, 1933) on schizophrenia in childhood was phrased in the language used to indicate the features of the disease as it was known in adult life. Accordingly, the symptom of autism was viewed by Potter as psychopathology in the sphere of thinking.

Interestingly, very little concerning childhood autism is noted in the world literature for the next decade following the studies just reviewed. However, in 1943 Kanner reported his descriptive study of eleven young children who presented two major clinical features: extreme interpersonal aloneness, and a marked desire for the preservation of sameness. He stated that these two phenomenological characteristics represented a possibly new diagnostic category, and accordingly named this descriptive symptom-complex "Early Infantile Autism". In further contributions, he focused on associated clinical signs, symptoms and family factors (Kanner & Eisenberg, 1956). Other contributions, based on similar descriptive findings (Mahler, 1952; Van Krevelen, 1952; Eisenberg, 1957) tended to confirm Kanner's initial observations. However, by 1958 Kanner himself had cautioned about the indiscriminate use of this diagnostic category, the still unsettled question of etiology, and the possibility that early infantile autism represented the earliest known form of childhood schizophrenia (Kanner, 1954; Kanner, 1958). More recently, he summarized the current status of this condition, viewing it still as a unique disorder which reflects an innate disturbance in the formation and development of affect in the child, and compared it to other innate disturbances such as mental deficiency (Kanner, 1965).

The condition has been studied intently by an ever-increasing number of clinicians. However, basic questions as to primary etiology have seemingly been pushed into the background in favor of operational points of view in diagnosis and treatment. As one reviews the variety of reported cases of psychotic reactions in infancy and early childhood (e.g. schizophrenia, atypical, austistic, symbiotic, etc.), autism appears present to some degree in all of them. Further, the autism is commonly reported in association with a disturbance in communication ,which generally appears as a refusal to communicate. Many clinicians, with lengthy experience in the diagnosis and treatment of groups of these children, have become strongly sceptical of the etiological unity of these autistic reactions (Eisenberrg, 1957). Table 1 lists the clinical disorders in young children in which autistic reactions have been reported.

Thus, autistic reactions occurring in childhood may be observed in a rather wide spectrum of relatively heterogeneous conditions. In this paper, our experience with a group of young children who displayed autistic reactions is reviewed.

Clinical sample

Since 1958, a Mental Retardation Clinical Evaluation Unit has been in operation at the Nebraska Psychiatric Institute. This Unit was designed as a pilot screening project, with emphasis on children less than eight years of age. Patients were referred to the Unit from a variety of sources, but all children had one feature in common: a clinical suspicion of mental retardation.

TABLE 1. ETIOLOGICAL VARIABLES REPORTED IN AUTISTIC REACTIONS OF CHILDHOOD*

Acute situational stress reactions (Boyer, 1956; Sarvis and Garcia, 1961).
Central language disorders (Ingram, 1959; West, 1962).
Childhood schizophrenia (Ekstein, Bryant and Friedman, 1958; Goldfarb, 1963).
Chronic brain syndromes of diverse etiologies (Pollack, 1958; Bender, 1959; Creak, 1963).
Constitutional factors (Bergman and Escalona, 1949; Mahler and Gosliner, 1955).
Convulsive disorders (Grunberg and Pond, 1957; Sarvis, 1960).
Deafness (Anthony, 1958; Bruner, 1959).
Deprivation: maternal, sensory, affective, etc. (Goldfarb, 1943; Spitz and Wolf, 1946; Bowlby, 1951).
Early infantile autism (Kanner, 1943; Rimland, 1964).
Idiot savant (Goldstein, 1959; Anastasi and Levee, 1960).
Patental over-protection with infantilization (Boyer, 1956; Sarvis and Garcia, 1961).
Mental retardation (Tredgold and Soddy, 1956; Schain and Yannet, 1960; Webster, 1963).
Multi-factorial etiologies (Grunberg and Pond, 1957; Wing, 1963).
Precipitate of severe parental psychopathology (Boatman and Szurek, 1960; Sarvis and Garcia, 1961).

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*Interestingly, except for the four disorders of experiential origin (e.g. acute situational stress reaction)—the remainder of this list is strikingly similar to the differential diagnosis of infantile mutism proposed by De Sanctis (1924).

During this five year period (1958–63), 616 children were evaluated by a full clinical team. In the initial interview, a medical member of the clinical team would review the personal history of the child with the parents in order to obtain sequential personal and clinical histories. Pediatric evaluation focused on general physical status, cranial and other pertinent measurements, and a Gesell developmental assessment (Gesell and Amatruda, 1954). A child neurologist examined the child with particular emphasis on general and developmental neurological status. An individual psychiatric examination focused on the quantity and quality of emotional interaction in the child, and the parent-child unit. A psychological evaluation was given by a clinical psychologist with experience in testing both retarded and emotionally disturbed children. A formal speech and hearing evaluation included an assessment of the level of language development. A routine radiographic survey included skull, chest, wrist (for bone age), and other films (e.g. pelvic and spine films) when they were felt to be useful. An electroencephalogram with awake, hyperventilation, and sleep records, was regularly obtained. Laboratory examinations included blood and urine studies, metabolic screening, and special tests when clinical suspicion suggested their need (e.g. urinary amino-acid analysis, cytogenetic survey, etc.). A social study of the family was undertaken by a clinical social worker with focus on the overall quality of the family relationships.

The findings and impressions of the examiners were fully reviewed at a case conference with all members of the clinical team present. Diagnostic and possible treatment recommendations were the major focal points of the case conference on each child. Wherever and whenever a problem of diagnosis or treatment could not be resolved, a re-evaluation (after a period of time), or inpatient evaluation, was recommended. A previous report on this project (Garfield, Wilcott and Milgram, 1961 reviewed some of the diagnostic problems that reached this impasse.

Thus, the psychiatric problems presented by these children were seen as part of the total clinical picture that emerged from the various investigations.

The sample is not random and there are certain known biases affecting it. For example, since the Nebraska Psychiatric Institute is a public facility, referrals from upper socioeconomic status groupings tend to be infrequent. This may be illustrated by examining education and occupation of the parents of the children: when these are interrelated in the Hollingshead two-factor index of social position (Hollingshead, 1957) 70 per cent fall into the two lowest status categories. Another example of bias stems from the consideration that only 2·6 per cent of the State population is non-white, and thus we would expect that, compared to the nation, this category is under-represented.

Results

In the total group of 616 children evaluated, it was the consensus of our clinical staff that 34 of them presented with both historical and clinical indices of autistic behavior. That is, behavior which is characterized by extreme self-preoccupation, highly personalized and stereotyped approach to inanimate objects, and unrelatedness to people (Rimland, 1964). Table 2 presents the age and sex of these 34 children.

TABLE 2. SEX AND AGE

	Sex		Age when initially evaluated Years			
Number	M	F	0–1·9	2–3·9	4–5·9	6–7·9
34	24	10	2	6	21	5

In Table 3 are listed the final etiological–diagnostic impressions reached on each child by our clinical staff. The diagnostic nomenclature employed herein is discussed in our previous report on this project (Menolascino, 1965).

In Table 3 cases number 1, 9, 10, 11, 13, 16, 17, 19 and 20 fulfill the two basic criteria of Kanner (1943), for early infantile autism. Further, the speech characteristics of cases 9 and 19 were consistent with those reported for this disorder. However, close attention to considerations such as time of onset, associated examination findings, and course(s) of illness resulted in only two children who we felt could be classified as early infantile autism. The problem(s) of the minimal differential diagnostic criterion to be employed in these cases has been thoroughly reviewed by Rimland (1964).

The final diagnostic impressions noted in Table 3 would tend to confirm the previously noted emerging spectrum of etiological variables in these autistic disorders (see Table 1). It is of interest that many of the children reviewed in Table 3 are not psychotic,* and this suggests that the symptomatic picture in these particular

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*This term is at times employed without regard to minimal diagnostic requirements—such as marked disturbances of feeling, thinking, speech, perception, motility, ability to test reality, control of instinctual energies, or associated social isolation and withdrawal. The British working party's activities (Creak, *et al.*, 1961; Creak, *et al.*, 1964) in seeking further clarification of the concept of psychosis in childhood emphasize the difficult clinical problems here.

TABLE 3. CHILDREN WITH AUTISTIC BEHAVIORAL REACTIONS

Case No.	Sex M	Sex F	Phys. Exam	Neuro. Exam	Abnormal EEG	Speech retardation Mild	Speech retardation Mod.	Speech retardation Sev.	Degree of mental retardation None	Degree of mental retardation Mild	Degree of mental retardation Mod.	Degree of mental retardation Sev.	Degree of mental retardation Indet.	Final diagnosis (after further evaluation and/or treatment)
1	x							x					x	Early infantile autism
2		x						x		x				
3	x		x	x	x			x		x				Childhood schizophrenic
4	x							x	x					
5	x			x							x			
6		x						x					x	
7	x								x					
8		x											x	
9	x		x	x		x				x				Encephalopathy of unknown or uncertain cause with the structural reaction alone manifest; with associated psychotic reaction
10	x				x			x				x		
11	x		x					x		x				
12	x			x				x					x	
13	x			x	x			x				x		
14	x							x				x		
15	x		x	x				x			x			
16	x			x	x			x			x			
17		x	x	x	x			x				x		
18		x	x	x	x			x				x		
19	x		x			x			x					
20	x			x	x			x				x		
21	x							x	x					Central language disorder with associated adjustment reaction of childhood
22	x				x			x	x					
23	x							x	x					
24	x							x	x					
25		x							x					Acute situational stress reaction
26	x								x					
27	x		x	x				x		x				Encephalopathy due to unknown parental influence; with behavioral reaction
28	x		x					x				x		
29		x	x	x				x			x			
30	x		x	x	x					x				
31		x		x			x				x			Encephalopathy due to unknown or uncertain causes with the functional reaction alone manifest; with psychotic reaction
32		x							x					
33		x						x			x			
34	x		x	x				x			x			Encephalopathy due to postnatal infection; with psychotic reaction
TOTALS	24	10	12	15	9	2	1	24	10	6	7	7	4	

N—34 x—Positive

autistic reactions is not predicated upon the degree of personality disturbance usually suggested under the rubric of "early infantile autism". Further, *mixed* etiologies are noted in some of these children, and thus mixed treatment results and prognoses resulted.†

DISCUSSION

The variety of etiological variables noted in our group of 34 children who presented with autistic reaction pictures suggests that multi-factorial processes are operative. The spectrum of etiologies reviewed herein appears to range from rather 'pure' organic etiologies, through the specific sensory dysfunctions with associated interpersonal problems, to the 'pure' psychosocial end-products of adverse personality and growth interaction.

These different etiological variables illuminate some further fundamental problems in this clinical area. The literature tends to refer to childhood psychosis, central nervous system disorders with associated emotional disturbance, childhood schizophrenia, atypical children (Rank, 1949), and early infantile autism almost interchangeably. It would appear that the theoretical inclination of the given investigator rather than the behavior of the child may determine to which factor the primary etiological diagnosis is attributed. The descriptive–diagnostic aspects also present formidable problems, since it is to be noted that many reports of clinical cases raise the question as to why the designation 'psychosis' has been employed. In our experience we have noted autistic behavioral pictures in children who are not psychotic. Further, we have observed many 'mixed' clinical pictures (e.g. etiological–diagnostic considerations suggesting two, three and more primary and/or secondary diagnoses), and relatively few unitary etiological daignoses that amply represent the given clinical picture.

These considerations emphasize the need for an initial formalized and thorough developmental history on these children; the recognition of this need appears to be only a recent occurrence in many of the clinical approaches to this problem. It would appear that too often the approach has been: "If the parents talk long enough, then things will become clear. . . ." The necessity for thinking developmentally encompasses the approach to the child, his parents, the particular socio–cultural–economic factors operating, and any recent reactive (e.g. crisis situation) elements. A developmental approach also emphasizes the close relationships between the emotional aspects of delayed personality unfolding in the young mentally retarded child (Webster, 1963) and the autistic stage of normal early personality formation. Piaget (1952, 1954), in his monumental studies concerning the origins and growth of cognitive facilities in children, described autistic thinking as non goal-directed subconscious ideation. He felt that this form of thinking typified the very young child and was thus an initial stage in normal personality development. Interestingly, he felt that further development (to egocentric status) was dependent on the intactness of the specific sense organs. These considerations seem particularly pertinent to some of the children reported herein with mental retardation, chronic brain syndromes, and central language disturbances. The associated autistic reactions in these children may reflect delayed global personality development secondary to limited intellectual capacities, the specific behavioral response to central nervous system insult(s) from a variety of causes, the modification of personality development in relation to altered modes of sensory reception, the emotional repercussions from disturbed interpersonal interactions, and possible combinations of any of these factors.

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†See Appendix for representative clinical case histories of children from each of the diagnostic categories noted in Table 3—with associated treatment overview and results.

In many of these children we have noted that temporal factors [e.g. developmental timing and stage(s)] are operative and important, since they may markedly alter the clinical picture observed at any given point in time. This awareness of the multi-factorial nature of some of these clinical problems also allows for tentative initial impressions that can be more fully explored during further observation and study of the child. Thus the initial clinical examination on an acutely disturbed child can be validated after he is in a more supportive setting, wherein periodic controlled observations can be obtained. In this regard, one seriously wonders if the diagnosis of early infantile autism can be accomplished and confirmed on an outpatient consultation basis. As in the rest of sound medical practice, it would be equally hazardous to diagnose bronchiectasis during an initial bronchitic episode, or designate that the patient has a "steppage gait", without evaluating him further for possible foot drop and its etiology. These comments appear pertinent to some of the basic questions concerning a methodological approach to ascertaining the primary or secondary role of autistic behavior in any given child. Is the child reacting to his deficits by withdrawal? Or is his withdrawal a primary and chronic interpersonal coping device? Have the parents insisted that the child *must* change, or are they more inclined to be less rigid? Needless to say, these considerations demand a comprehensive approach to the total clinical picture—past and present.

It may be pertinent to note that our clinical sample is from a group of children who were considered to be possible mental retardates—since this is a similar clinical matrix from which Kanner (1943) reported his initial study of eleven children. The family characteristics of our group were at sharp variance with those reported by Kanner (1954). Three parental units were designated as "emotionally refrigerated": one of them was associated with early infantile autism, another with a child who had multiple congenital anomalies and severe mental retardation, and a third with a child who had a central language disorder with an associated adjustment reaction of childhood. Of the remaining 31 parental groupings, 12 were noted to have structured psychopathology, 11 had reactive psychopathology, and 8 were considered to be within normal limits.* The sociological parameters of our group of parents would suggest closer agreement with the findings of Bender (1959) and Rimland (1964) as to parents of children with autistic reactions. Interestingly, many of our 'middle class' families were not only conversant with 'autism' (e.g. from lay magazine articles)—but also employed this information in a variety of maneuvers to seek treatment recommendations other than "Just for a retarded child". Tactful and thorough family interpretation and counselling have become a major part of our approach to these parental attitudes. We have noted that the degree to which we can empathically approach and correct these family preconceptions as to treatment expectations, is directly related to future implementation of our actual treatment recommendations, successful long-term management, and the dampening of a family's enthusiasm to "Shop around for someone else's opinion . . .".

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*Criteria for family assessment and results for this group of children is available from the author upon request.

As previously reviewed, the etiological–diagnostic positions advanced in the literature strongly reflect the divergent etiological points of view. These range from considering autistic reactions as the product of a disturbed mother–child, or family–child relationship, to the concept that they are the end result of central nervous system damage or dysfunction. Changes in the 'fashion' of psychiatric diagnoses [e.g. early infantile autism is commonly viewed at present, in some clinical centers, as an infrequent form of a unique brain injury syndrome in childhood, rather than the precursor to childhood schizophrenia (Robinson, 1961)] and increasing psychiatric experience and contact with children in homes for the retarded—where 'autistic' and primitive 'psychotic' behavior abounds—very hopefully may lead to a decrease of differences in professional attitudes in this area. The foregoing clinical and theoretical problems obviously present major roadblocks to basic research considerations in this clinical area, as noted by Wing (1963).

It would appear that we may have overlooked the essentially descriptive nature of Kanner's delineation of early infantile autism, and have generalized this concept until all autistic phenomena noted in disturbed young children are squeezed into the same Procrustean bed. Indeed, a strong argument can be advanced for the necessary narrowness of the concept (Kanner, 1949; Despert and Sherwin, 1958). Essentially, Kanner described a group of children who displayed a *primary* disability in initiating affective contact with the interpersonal environment. His contributions have given us an increased impetus to re-examine our professional positions concerning deviant behavioral development in the young child, from a variety of standpoints. For example, we have reviewed more thoroughly the clinical meanings of autism', and noted that an autistic reaction in a child does not necessarily mean an 'autistic or psychotic approach to life. More thorough assessment frequently reveals that the child may not like reality, but that he does not deny it or withdraw from i.t

Possibly, like the story of the blind men examining different aspects of the elephant, we are focusing on a variety of external behavioral manifestations and associated hypotheses as to their possible mechanisms, rather than on basic causes. As noted, we have been impressed by the multi-factorial aspects of the series of events which may culminate in autistic reactions. In this regard, we would concur with Sarvis and Garcia (1961) that, "These autistic behavioral patterns and reactions —occurring at particularly vulnerable developmental stages—may seemingly be set in process during this vulnerable period by any or all of a series of etiological gradients or vectors in any combination" (p. 307).

The recognition of a multi-factorial etiology suggests that many of these autistic reactions may be more appropriately viewed as symptomatic behavioral pictures rather than as specific syndromes. Indeed, it may well be that it has taken us two decades to fully appreciate Kanner's initial caution in 1943: "Possibly some of them are brain damaged. Possibly all of them are schizophrenic. But in whatever category one wishes to place them, they do present a phenomenological constellation sui-generis" (Kanner, 1943, p. 232).

SUMMARY

The 34 children reviewed in this report all presented initial clinical pictures of autism. Further study revealed eight distinct etiological subgroupings, only one of which was the syndrome described by Kanner as early infantile autism. Representative case histories of all the subgroups are presented. The variety of etiological–diagnostic entities noted, suggests caution in the use of the term 'autism' as a meaningful diagnostic or treatment consideration. The present divergent views on autistic reactions of childhood are discussed within the framework of developmental and differential diagnostic considerations which may lend more clinical clarity to this area.

The time is hopefully near when we will be able to more clearly delineate the different types of severe emotional disturbances of early childhood without restrictive notions which suggest unitary phenomena. Further clinical studies are apparently needed to clarify the behavioral reactions which are too frequently subsumed under 'autism'.

APPENDIX

Early infantile autism

D.N. is a caucasian girl who was first referred at 19 months of age with a history of withdrawn behavior, uncommunicativeness, intense insistence on sameness in her environment, and verbalizations consisting primarily of grunts. The pregnancy, birth, and neonatal periods are described as being essentially normal. In the early weeks of life, she is described as having been an extremely passive child who would rarely smile, and by the end of the first year "She would not smile at all, didn't seem to care who was around, she seemed to be in a world all her own" (father's statement). She showed little anticipation to being picked up and appeared to draw back when held—first with her mother, and later with baby-sitters. In early life she did not follow her mother with her eyes and did not seem alert to, nor interested in, any facets of her environment. Toward the end of the first year of life, she was noted to do much rocking—especially to music. Also, prior to one year of age, she was very selective as to what foods she would eat. From six months of age onward, grunting was employed as her major form of speech. At 11 months of age she said, "Mama", but the mother stated: "I never knew if she meant the word for me or for anybody or anything, she just said it". The developmental timetable, except for speech, was within normal limits.

Following an initial outpatient evaluation, she was shortly after admitted to our hospital for further evaluation, at 21 months. There, she was noted to be unresponsive, displayed severe temper tantrums when her solitary play patterns were disturbed, and rejected both emotional and physical attempts at contact.

She communicated her demands by guiding the therapist over to the objects that she wanted, interaction on any other levels was not noted at these times. Physical, neurological, and laboratory examinations—including an EEG—were all within normal limits. Psychometric examination revealed an atypical pattern of mild mental retardation with some successes in a few tasks near her age level. The family history reveals no history of emotional or heredito-degenerative disorders. The patient's mother, age 24 years, had been a teacher throughout the child's first 16 months of life. She is described as a very insecure person who was in competition with her teacher-husband as to intellectual pursuits, and as to whom should take care of the physical needs of the child, do the housework, etc. Following a surgical procedure for tubal pregnancy, when the patient was 17 months of age, the mother recuperated at home. She stated: "I suddenly realized how much I had left her by herself . . . I've tried to make it up to her." The patient's father, aged 30 years, is a high school mathematics teacher who is continuously enrolled in correspondence courses at a local university, in an effort to obtain a post-graduate degree. He stated that he had not wanted children before completion of his advanced studies. He appeared only peripherally involved in the functions of the home, and, referring to the patient's problem, he felt the child "Would grow out of it". There are no other children.

During the child's six month stay at our hospital, with play therapy five times per week—she made some affective contact, spoke a few more words, expressed herself more intelligibly with vocalizing, and became more responsive towards her parents when they came to visit (and for collateral individual and group therapy). Three periodic six month follow-up examinations have revealed a consistent improvement in all behavioral dimensions. A recent psychometric examination—April, 1964 (chronological age 3 : 6 years—questioned whether her emotional immaturity may still account for her mild developmental lag in the area of intellectual functioning (borderline intelligence level with full scale score of 78 without subtest scattering on the Stanford–Binet).

Childhood schizophrenia

D.P. is an eight year old girl who was evaluated because of increasingly aggressive behavior against a general background of suspected mental retardation. She is the second of five children, born to a 32 year old mother after an uneventful pregnancy. The birth and neonatal periods were not remarkable. Developmental milestones were distinctly slow (especially speech). She is described as showing a preference for play with much younger children throughout early childhood.

She apparently had difficulty in formal education (kindergarten—twice; then placed in special education program for slow learners). In the special education program, she was described as limited in her academic achievements, displayed immature speech, and seemingly needed much emotional support.

At age 7 : 6 years, she began to walk in an odd fashion, slowly regressed in bowel and bladder control, and began to complain of nightmares wherein she would scream that a mouse was biting her, that there were bugs and indefinite objects crawling all over her, and that a man was in the room with her and was going to kill her. Her disturbance slowly became more marked, and she displayed intermittent periods of irrationality, vague ideas of persecution, frequently stated that she was going to die and asked forgiveness from her mother.

Despite these prominent emotional difficulties, she again entered special education classes that Autumn. She became combative on her first day in school, and on the school bus that evening she expressed a fear that the bus driver was going to "eat her up". It was this acute disturbance which ushered in her investigation at our clinic.

Psychiatrically, she initially displayed a thought disorder (with echolalia), inappropriate affect, autistic distancing devices such as withdrawal, vacant staring, stereotyped and highly personalized hand movements, frequent inexplicable episodes of acute anxiety which reached panic proportions, and quite disorganized intellectual responses.

Results of thorough physical, neurological, and laboratory evaluations were all within normal limits—except for her small physical stature. She appeared physically more like a five year old (rather than her chronological age of eight years).

Family dynamics were interesting and complex. Her mother apparently may have had a similar disorder early in life, since she presented with definite signs of a chronic undifferentiated schizophrenic psychosis in remission. The father, who died in a car accident when the patient was three years old, was described as "mentally slow". The step-father, a janitor, had a drug-induced hearing impairment, and seemed passive and perplexed by the present circumstances; he tended to employ his hearing problem to support his relative isolation from the family: "I can't tell what is going on at home most of the time . . . I'm quite deaf, you know." (Points to hearing aid).

During her in-patient stay, individual psychotherapy, trifluoperazine medication, milieu therapy and collateral family therapy were employed. The child progressively related better, autistic features abated slowly, she expressed her wants more directly, and slowly lost the acute aspects of her initial clinical picture. Re-evaluation after four months of in-patient care revealed both signs of a schizophrenic psychosis in remission, and rather uniform intellectual retardation in the mild range (full-scale score of 62 on Wechsler Intelligence Scale for Children). Her present clinical status (at age 9 : 6) causes one to ponder if she doesn't represent a propf-schizophrenia disorder (Lanzkron, 1957).

Chronic brain syndrome (of unknown etiology) with psychotic reaction

P.J. was aged 5 : 6 when he was referred to us with the chief complaint of "He's always in a world of his own". Personal history revealed that he was the first born child to a 24 year old mother. The pregnancy, birth, and neonatal periods were described as not remarkable. Early motor development was within normal limits, except for speech, which had never evolved. Myoclonic seizures began at age 10 months, initially 3–5 seizures per week; pediatric evaluation at age 11 months revealed a hypsarrythmia EEG record, but no other significant physical or neurological findings. He was placed on primidone (Mysoline) and there were no further seizures by age 14 months. As to his behavioral development, the mother stated "He had been so alert and active during the first 8–9 months, so easy to please and always responsive to attention. But after those spells started it became really very frustrating trying to keep him happy or busy. When he was very small, I would play with him to try to get him to be happy, but he never seemed to care. He never cried to be picked up like my other babies did. I put him in a play-pen when he was six months old, and he would play for hours *always* with a string of balls that I made for him; he loved this toy, he played with it to the exclusion of all others, and would have a temper tantrum if we tried to hide it. He has just somehow grown up that way—all to himself—and we just can't please or reach him."

The child had been enrolled in both a nursery school and a facility for the retarded, but was unable to interact in either of these two groups, and soon became the victim of physical abuse from the other children.

On initial psychiatric examination, no affective contact could be made with him. He twirled toys, hummed to himself, and would periodically stare at his hands. Attempts to interfere with his stereotyped play activities precipitated marked excitement, until he was allowed to return to his accustomed patterns. He hummed to himself continuously, but no discernible speech was noted.

Physical and neurological evaluation were within normal limits (except that he was incompletely bowel trained). The EEG was interpreted as, "Diffuse poly-spike and wave picture with some focal tendency in the right posterior-temporal area". The remaining laboratory examinations were all within normal limits. On formal psychological testing he was considered essentially untestable. Vineland Social Maturity Scale suggested severe mental retardation (social quotient of 18 months).

The patient's mother, aged 32 years, presently a housewife but formerly a grade school teacher, was moderately anxious and employed much intellectualization concerning her son's problems. She seemed in competition with her husband concerning the child. The father, 34 years of age, a furniture salesman, was quite hostile about past medical contacts ("we've been on a merry-go-round—no one says anything"). He seemed alternately hopeful and then dejected, about his son's presenting problems. In the interview setting, he was very controlled, and took a reporter's stance towards his son's problems. He was actively involved in the functions of the home, and, referring to his son's problems, he felt the child "Is a real puzzle—he looks so bright—why can't he do more?" The other three younger children in this family revealed no major psychopathology on examination.

Following 2½ years of treatment (initially as an in-patent, then as a day-patient with associated collateral family treatment)—the boy allowed more social contact, but this remained as an almost mechanical procedure for him (social compliance rather than self-initiated interaction). The stereotyped play patterns persisted, and no speech was noted. Presently (four years after initial contact) he is at a home for the retarded. He displays severe mental retardation, has essentially no speech, is autistically encased and remains on the periphery of the ward activity groups.

Chronic brain syndrome (post-infectious) with psychotic reaction

J.R., a boy of 3 :9 when evaluated with the chief complaint from the parents of "He always runs—never walks. He loves to break lamps and picture windows. No one seems to know why he's so wild. You can never reach him or talk to him—he seems to be in a world of his own."

Briefly, the boy was the product of the third pregnancy of a 32 year old mother; the prenatal, birth, and neonatal periods, were described as being within normal limits. Developmental milestones were evolving normally until the boy had a severe febrile episode at 26 months, with prolonged elevated body temperature, intermittent opisthotonos, transitory periods of confusion, and coma. Laboratory search for infectious agents was negative. Following this period, he was noted to display a marked personality change, with hyperactivity, distractability, relative cessation of further developmental milestones (with some regression of those already attained—especially speech), impulsivity, and refractibility to behavioral correction. Several previous medical evaluations had resulted in two impressions, "childhood schizophrenia" and "infantile autism".

On initial evaluation, he was an extremely hyperactive boy—jumped from table to table, climbed out the window and vigorously threw toys and furniture. Attempts to structure a play situation with him led to temper tantrums and head banging against the wall. Grimacing and bizarre hand posturings were noted during his brief periods of quiescence. Little affective contact could be made with the child, and he displayed apparent pre-occupation with himself in the form of many self-stimulatory activities. Speech was fragmentary and mostly monosyllabic.

Physical and neurological examinations revealed some towering of the skull, delayed finer hand movements, and a mild incoordinate gait. No focal neurological signs were noted. The electroencephalogram was interpreted as "Slow wave focus: right temporal". The remaining laboratory studies were all within normal limits.

Evaluation of the family revealed that he was the third of three children; the two older siblings (sisters of 12 and 8 years) have definite neurotic tendencies. The mother, 36 years of age, apparently had a marked depressive reaction following the birth of this child. She stated—"I didn't want any more children—my husband did—we named him after my husband—but I just felt all tired out and my sciatica problem came back to haunt me. I felt that my older children didn't lean on me anymore like they did, and should. When he started to walk and then became so talkative, I began to get interested in him, but this only lasted about eight months, because he's been a little devil since he was sick that time." The mother was the dominant, but lonely leader of the family. The father, aged 39 years, a business clerk, was a good-natured, passive man who appeared willing to do "anything to keep peace in the family" rather than not wanting to be involved in his son's current problems. He bore the brunt of the child's behavioral problems in a stoical manner.

After the first two weeks of in-patient care, the boy's hyperactivity sharply diminished, but the grimacing, bizarre hand movements, and social isolation, continued. He would lick the toys, then smell them, spin them—and start the sequence all over again (with little interest in interaction with the therapist). During the next two months of treatment, he increasingly allowed personal contact, looked forward to his play room time, and began to display direct aggression. Psychological (W.I.S.C.) and language development (Michigan Picture Vocabulary Test (Wolski, 1962)) evaluations concurred that he was functioning at an 18 month level (chronological age, 48 months). Family therapy focused on the father, since the mother openly rejected therapy ("I know that I haven't done right by him—but then I didn't want him. I had found out that children wouldn't and couldn't make me happy—and then he came along. I just don't care to have him, I have too many problems of my own—and they are none of your business, etc."). The father was cooperative in the treatment planning for his son, and employed his therapy sessions for ventilation and support. During the eighth month of the boy's treatment, the mother spontaneously requested psychiatric care and this was initiated.

At present the boy is five years of age and displays moderate mental retardation, personality immaturity, and language retardation—but no significant autistic or hyperkinetic aspects. He is enrolled in a nursery school for the retarded. Family interactional pattern is quiescent and more empathic of the boy's multiple needs.

Acute situational stress reaction

R.B. This boy was 3 years of age when he was referred to our hospital by his family physician because "He had frequent bouts of tracheobronchitis, borderline hypo-gammaglobulinemia and has always been overactive and stubborn—I think he must be mentally retarded." The mother augmented these chief complaints with "He's cranky, won't mind and likes to play with himself" (masturbation).

The boy was the first-born child to a 22 year old mother, who had had a previous miscarriage (at three months—cause unknown). The pregnancy and birth of this child were not remarkable. The developmental milestones were all within normal limits. Soon after he commenced walking (age 11 months), he apparently became increasingly hyperactive, demanding, and commenced to have "periods when he would just be in a world of his own, keep to himself, played with his sexual organ, wouldn't talk, and then he started to have all of those chest infections." (Mother's statement). He apparently had three episodes of acute tracheobronchitis during the next five months (age 12–17 months). Hypo-gammaglobulinemia was tentatively established as a cause for his repeated infections. He was hospitalized on four separate occasions during this period (ranging from three days to two weeks). During the last such period of hospitalization, he apparently became increasingly more self-centered, and attempts to engage him in interpersonal interaction were met with refusal and temper tantrums. The previously noted masturbation increased. The increase in these clinical features prompted his referral to our clinic.

On initial psychiatric examination, in the play room situation, he was noted to be an alert appearing boy who literally took over the playroom situation—to the exclusion of the examiner. In rather quick sequence he punched Bobo a couple of times, painted a picture of his home, made a fort out of blocks, and started finding targets for his dart gun. Speech was at appropriate age level (with some infrequent pronoun reversals)—while he engaged in these play patterns. His gaze was averted and no affective contact could be made with him. His play patterns were repetitive—he would repeat the above noted play sequences over and over again.

Physical, neurological, EEG, and other laboratory tests, were within normal limits. Psychological testing (Stanford–Binet) gave an initial impression of high normal functioning in non-verbal areas (retesting following one month of in-patient care revealed cooperation on verbal tasks with a resultant full scale I.Q. of 116 (Stanford-Binet)).

Parental psychopathology was complex—in relation to the boy (only child), between themselves, and in the parents' marked individual problems prior to their marriage. Mother's past history of a questionable seizure disorder in late adolescence, and over-concern about two maternal aunts who are in an institution for the retarded, combined with her depression following the earlier miscarriage, apparently diluted her earlier mothering with the boy. Near panic ensued when a physical disorder was initially suspected in her son (the hypo-gammaglobulinemia). Her initial perplexity concerning the child's developmental potential had progressed to active support of his autistic behavior: "I feared that something worse might develop, so I didn't push or bother him." Father, a tree trimmer by occupation, had had much adolescent turmoil—with alcohol being indiscriminately employed in late adolescence to control it. The onset of his son's behavioral problems exaggerated his alcoholic consumption and periods away from the family, with increasing deterioration of the family communication patterns.

On play therapy, five times per week, this boy made rapid strides toward increasing affective contact—so much so that within two weeks, the clinical picture appeared more like an adjustment reaction of childhood (in other words, no autistic features were noted at that time). Collateral family psychotherapy (with focus on mother) was slow, but definitely progressive. Presently the child is enrolled in a community pre-school program.

Central language disorder with associated adjustment reaction of childhood

B.W. was a boy of 3 : 6 who was initially examined with the chief complaint from the parents: "since he was under six months of age he has been keeping to himself, obstinate, and he's like a non-entity rather than a human being" (father's statement). The personal history revealed that the mother had rubella during the sixth week of gestation. Birth and the neonatal period were not remarkable. All developmental milestones—except speech—were within normal limits. At 6 months he commenced to have irregular tonic posturing episodes; petit mal epilepsy was considered; but thorough neurological evaluation at that time (with electroencephalogram) was negative. His play patterns since 9 months have been described as being compulsive, repetitive, and isolated. During the three months prior to our evaluation, head banging and teeth grinding became persistent activities.

The mother first became concerned with the child's deviant development at 12 months, when she felt the child was deaf. He subsequently attended a hearing school, and after a period of observation there (6 months) he was no longer felt to be deaf.

At the time of our initial evaluation, the parents were under collateral psychiatric treatment because of the assumption that their son was "an autistic child". The father, a college junior in zoology, had a detached attitude towards his wife, this child, and the child's problems. Both parents tended to over-intellectualize their child's problems. The mother appeared to blame herself for the rubella, having to work to support her husband in school (this had meant a variety of baby-sitters since the child was age 2 months), etc.

On initial psychiatric examination, persistent body rocking movements, rolling of the eyes, and grinding of the teeth were constant findings. Bizarre hand play and well developed stereotyped play movements were also observed. Carpet burns were noted over his forehead (head banging residuals). He had consistent difficulty in communicating, and remained non-verbal in the playroom situation. He did, however, make fleeting affective contact when the situation was not too threatening. Attempts at structuring a play situation, or physical contact, quickly produced withdrawal and the previously noted features.

On physical examination the child was in the third percentile in respect to weight and height. His general motor developmental level appeared to be immature, though he displayed much dexterity in handling certain toys. Neurological examination revealed a variable generalized hypotonia in both upper extremities and hypereflexia in both lower extremities. No focal neurological findings were noted. The EEG was interpreted as normal. The remainder of the laboratory studies were within normal limits. On initial psychological testing he was largely untestable because of erratic cooperation and low frustration tolerance. Two weeks later, he was able to perform certain motor tasks at a normal level for his age. It could not be determined whether his failure on other items was due to lack of ability or lack of cooperation. On speech and hearing evaluation, the child was deemed to have a central language disorder; hearing was considered to be within normal limits.

The child rapidly responded to a brief period of in-patient care in which therapy was focused on providing a non-stressful interpersonal environment for him, and supportive individual play therapy. Within two weeks, he actively sought and displayed affection, initially with the therapist, and then with other children and staff members. Despite the child's continuing behavioral improvement, the father persisted in his queries (in a passive-aggressive manner) as to why the child had no speech, if he was of normal intelligence: "Why can't he speak up? . . . He must be brain injured and retarded . . ." (Psychological re-evaluation at 3 : 9 had revealed normal to superior functioning on all non-verbal tasks (Cattell, Peabody Picture Vocabulary)). Collateral family therapy came to a standstill because of father's doubts as to its efficiency in relation to his son's problems.

Father's completion of college studies and subsequent employment in another state necessitated cessation of treatment when the child was almost 4 years old. A follow-up examination (1964—child aged 5 : 3) revealed a clinical picture that was strikingly similar to the one we had noted during our *initial* evaluation of the child. The father had seemingly convinced the mother that "The boy belongs in an institution for the retarded . . . he's ruining our family's mental health . . ." Our previously suggested treatment guidelines (for child and parents) had not been followed. The parents arranged for admission of the child to a state mental hospital; they reportedly have not actively participated in his treatment program there to date.

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GILLES DE LA TOURETTE'S DISEASE IN CHILDREN: A REVIEW OF THE LITERATURE

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INTRODUCTION

GILLES DE LA TOURETTE described in 1885 the syndrome, which has been given his name, on the basis of 9 cases which he had seen in clinical practice. It is also known as "maladie des tics" (Mahler and Rangell, 1943) or "convulsive tic syndrome" (Wilder, 1946). His description of the syndrome is as follows: "The mode of onset, at least in all the cases which we have observed and which are the only ones on which we have complete information, is generally or almost always identical. Motor incoordination is the presenting symptom: a type of incoordination which has the peculiarity that it is established slowly and insidiously, without seeming to influence the general health of the subject. These incoordinated movements or rather muscle jerkings commence most frequently in the region of the face or of the upper limbs. . . . The lower limbs, in their turn, are soon affected and their uncoordinated movements also take a particular form; they are no longer movements limited to isolated groups of muscles as are the preceding ones; the spasms appear most often in groups of muscles in one or other limb, frequently in both limbs at the same time. . . . To the motor incoordination are added later inarticulate sounds. . . . Articulate words with echolalia and coprolalia combine with the uncoordinated movements and inarticulate sounds." In a later section, de la Tourette states that the outcome for the syndrome is poor and the patient is likely to be left with the symptoms for the rest of his life.

Around the same time there were papers published on latah (O'Brien, 1883a), myriachit (Hammond, 1884) and the 'Jumpers' of Maine (Beard, 1880). De la Tourette rather hastily, it is now thought, identified these reactions with the syndrome which he had been studying (1885).

The latah reaction is found among the Malays and consists of a severe startle reaction, echopraxia, echolalia, automatic obedience and coprolalia (O'Brien, 1883a). These cases are never hospitalized but are tolerated in the community, not being considered unduly abnormal. Myriachit is another word for the same syndrome. The 'Jumpers' of Maine display similar features as part of a religious ritual. Some of the participants found however that they were 'compelled' to carry out these actions on other occasions when the ritual was not relevant.

Yap (1952) suggests that latah and the similar reactions are traumatic or fear neuroses found in primitive cultures—cultures with limited control over the environ-

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ment. He states that the differences between these reactions and de la Tourette's syndrome are clear cut.

(1) Tic-like phenomena are never seen in latah reactions whereas they are usually the initial symptoms of the de la Tourette syndrome.
(2) The majority of latah reactions are seen in females. This is contrary to the incidence of de la Tourette's syndrome.
(3) While coprolalia and echo-phenomena are necessary to the definition of latah, only just over half of known cases of maladie des tics show coprolalia and, moreover, only 5 out of the 8 cases described by de la Tourette showed this. (Non-coprolalic vocalizations are common in cases of the syndrome when coprolalia is absent.) Echo-phenomena are mentioned in a small minority of cases of maladie des tics.
(4) The latah reaction is usually prompted by some sound or action in the environment. Tics and vocalizations in de la Tourette's syndrome are less specifically related to the environment.

It seems, therefore, that de la Tourette was mistaken in trying to identify his syndrome with these others, and that we must conclude as did Yap (1952) that "there can be no doubt that the latah reaction and convulsive tics are unrelated".

THE STUDY

This study is an attempt to summarize 44* cases of de la Tourette's syndrome which have been published over the last sixty years under the following headings: sex, age, description of symptoms, details of family and personal history, neurological examination and EEG results, psychological test results, types of treatment, and outcome. The difficulties of drawing conclusions from a review such as this should be borne in mind. The case studies inevitably include only selected facets of the case, as the authors have not always employed the same criteria nor looked for the same factors. In addition, as most patients were seen approximately 8 years after onset of the symptoms, the difficulties of obtaining accurate information about the early stages of the syndrome are apparent.†

Sex

Of the cases where sex of the patient has been specified, 30 were male, 9 female.

Age of onset

The ages of onset ranged from 4 to 18 years with a mean of 8·8 years. However, 27 of the 31 cases where a specific age is stated were 10 or under. In addition, of 7 cases where age is not specified, there are indications that the onset was in pre-adolescence. It should be noted that of those 4 whose onset was later than 10 years of age, 3 cases had an atypical development of symptoms, i.e. facial tics initially. One, however, had been diagnosed as 'fidgety' around 7 or 8 (Walsh, 1962). The symptoms of two others are described as having been precipitated by a frightening experience. (Ascher, 1948, Cases 4 and 5.)

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*Forty-five cases diagnosed as Gilles de la Tourette's syndrome were found. The cases were picked on the basis of the title of the paper, and range from 1906–1964. One, however (Ascher, 1948, Case 3), has been excluded on the grounds that onset was at age 36, and, moreover, the only symptom appears to have been compulsive coprolalia which disappeared after 1 year.

†The cases reviewed by Mahler *et al.* (1945) have not been included in this review. Although the authors relate their cases to Gilles de la Tourette's syndrome, it is not clear from the article how they differ from tiqueurs in general. Both Zausmer (1954) and Kelman (1964) have included the cases of Mahler *et al.* in their reviews of studies of tiqueurs.

Description of symptoms

It would seem that the majority of cases which have been diagnosed since de la Tourette's original article fit in closely with his description. Eyelid blinking, neck movements and facial twitchings of some sort have been a first indication in the majority of cases (28 out of the 34 where the symptoms are described). Of the 6 cases where these symptoms did not occur, the pattern was of arm-thrusting movements and/or jumping and leg movements, with vocalizations of one sort or another. Two cases (Hassin, 1930 and Chapel *et al.*, 1964, Case 2) showed only a jumping symptom. Seventeen cases developed coprolalia and the remaining 15 described had vocal outbursts (varying from barking to actual words) which were not obscene. Echolalia was mentioned in two cases only, echopraxia in 1 and echokinesis in 1.

Family history

Descriptions of the family history are incomplete. In 14 cases it was stated that there were no abnormalities in the family. In 2 cases (Bockner, 1959, Case 2; Dunlap, 1960), the father of the patient was said to blink, and in a third (Eisenberg *et al.*, 1959, Case 3), the father was stated to have had facial tics and compulsions up to the age of 14. In the history of one patient it is mentioned that he had a brother who was choreic, and it was felt that the patient had imitated him initially (Eisenberg, 1959, Case 7).

It would seem that there is very little of common significance in the family background of these cases.

Personal history

In the pre-natal history of 2 cases (Eisenberg *et al.*, Case 7; MacDonald, 1960), there was toxaemia of pregnancy and in one (Mahler and Rangell, 1943) attempted abortion.

Four cases were stated to have been hyperkinetic before the onset of the tic symptoms (Rapoport, 1959, Case 2; Tobin and Reinhart, 1961; Walsh, 1962; Eisenberg *et al.*, 1959, Case 5) and 3 to have been diagnosed as choreic (Bockner, 1959; McDonald, 1960; Millman, 1960). Temper tantrums are mentioned in 2 cases (Salmi, 1961; Schneck, 1960) and 5 cases were noted as having obsessional symptoms (Eisenberg *et al.*, 1959, Case 7; Ascher, 1948, Case 1; Bockner, 1959, Cases 1 and 2; Singer, 1963). A specific precipitating cause is attributed to the syndrome in 6 cases: 2 after situations threatening the patients' physical well-being (Ascher, 1948, Cases 4 and 5); 2 after tonsillectomy (Eisenberg *et al.*, 1959, Case 1; Chapel, 1964, Case 2); 1 after measles (Rapoport, 1959) and 1 of imitation (Eisenberg *et al.*, 1959, Case 7).

In addition, febrile illnesses are mentioned in 2 case histories, tonsillectomies in 7, measles in 2. It is not clear what connection, if indeed any, these have with the onset of symptoms related to de la Tourette's syndrome.

Intellectual level

Intelligence test results are given in only 14 cases. In these the mean I.Q. is 106 with a range from 89–142.

Neurological examination and EEG results

These findings were given in 19 cases, of which 11 were within normal limits. A summary has been made of those cases with some abnormality (Table 1). Abnormal neurological signs are almost all included in the table, being coincident with an abnormal EEG result. The only addition is a comment by Lucas (1964) that one of his patients had poor coordination. There is, unfortunately, no record of this patient's EEG results.

Table 1. Summary of patients with abnormal EEG

Author	EEG results	Other features including abnormal neurological signs	Treatment and outcome
Rapoport 1959	1. Difficult to evaluate because of movements	Onset after measles	Psychotherapy and drugs failed. No follow-up
	2. Abnormal but not epileptic	Hyperkinetic	Slightly improved with anti-Parkinsonian drugs
Salmi 1961	Normal basic activity. Spike potential without any localizing tendencies	Slight deviations in left-sided extremities	No change with drugs or hypnosis. No follow-up
Tobin and Reinhart 1961	Non-specific abnormalities	Hyperkinetic	—
Walsh 1962	Non-specific abnormality	Vertical diplopia	Controlled by chlorpromazine
Eisenberg 1959	2. Indicative of post-infective cerebral changes	Obscure febrile illness	—
	5. Slow wave activity	Hyperkinetic baby	Improvement with hypnosis
MacDonald 1960	Suggestive of temporal lobe disorder	Measles followed by chorea. Tonsillectomy with haemorrhage. Toxaemia of pregnancy	Anti-epileptic drugs no use. Methedrine successful with CO_2. 4½ yr. follow-up

There seems, therefore, to be no known organic basis for de la Tourette's syndrome. Most people have, however, assumed as did Wechsler (1952) that "the condition is no doubt based on organic cerebral changes, but the nature of the pathology is unknown". On the other hand, others have concluded with Dunlap (1960) that "the psychopathic reaction to the environmental stress is of greater aetiological importance to the development of the syndrome than organic factors". Eisenberg *et al.* (1959) describes 2 autopsy reports, one by de Wolf and van Bogaert (1941), the other by Balthazar (1957). The first revealed no central nervous system pathology, the other no gross pathology, although some abnormality was found in the striatum, but its significance is not known.

Considerable interest has been taken in the structure and function of the striatum and there have been suggestions in the literature that this is the area involved in tic symptomatology, although there is as yet no clear-cut evidence for this (Brain, 1962).

Treatment and outcome

The treatments have been many and varied and most patients have undergone more than one form. Details of treatments used and their outcome are shown in Table 2.

TABLE 2. DETAILS OF TREATMENT AND OUTCOME

Treatment	Outcome			Total
	Improvement	No change	Worse	
psychotherapy	6	4	1	11
isolation	–	1	2	3
hypnosis	1	3	–	4
told 'not to suppress it'	1	–	1	2
narcoanalysis	1	2	1	4
insulin	–	1	–	1
CO_2	2	1	–	3
ECT	1	2	–	3
chlordiazepoxide and isocarboxazid	1	–	–	1
amphetamines	1	3	2	6
chlorpromazine	5	3	–	8
triflupromazine	2	–	–	2
trifluoperazine	2	–	–	2
thioridazine	1	–	–	1
haloperidol	5	–	–	5
Total	29	20	7	56*

*Some patients had more than one form of treatment.

Besides these treatments it is mentioned that many cases had been given drugs of various sorts at one time or another, sometimes with a temporary remission, but in most cases having no effect at all. The drugs mentioned are tranquillizers—reserpine, meprobamate, barbiturates (unspecified) and bromides; anti-Parkinsonian drugs—procyclidine (kemadrin), trihexyphenidyl (artane), as well as muscle relaxants (unspecified) and mephenesin. An anti-epileptic drug, dilantin, was used in one of Eisenberg's cases, and by MacDonald (1960), with no effect. However, trimethadione (tridione) used in conjunction with triflupromazine was found to be successful (Lucas, 1964).

It would appear that drug treatment with phenothiazines (chlorpromazine, triflupromazine) and piperazine derivatives (trifluoperazine, thioridazine, haloperidol) have been most successful.

Side effects of drugs. Side effects have occurred from the use of haloperidol (Chapel *et al.*, 1964; Challas and Brauer, 1963). However, adjustment of the dose has prevented this. Bockner (1959, Case 1) had to discontinue the use of chlorpromazine because of side-effects.

Follow-up studies. There have been very few systematic follow-up studies of the cases treated. Both Michael's (1957) and MacDonald's (1963) cases treated with CO_2, and CO_2 and methedrine were still improved after 15 months and 4½ years respectively. Michael's patient still has slight vocal tics. MacDonald's patient became a nurse and was completely symptom-free.

Millman (1960) treated his case with amphetamine and psychotherapy and 2½ and 9 years later the patient was competely symptom-free. Lucas (1964) followed up 1 case with triflupromazine in conjunction with an anti-epileptic (trimethadione) and found the reduction in tics remained. Walsh's (1962) patient, treated with chlorpromazine, followed up after 15 months, was symptom-free. Of the cases given haloperidol, one has been relatively symptom-free for 8 months (Chapel *et al.*, 1964, Case 1). The other cases have been markedly improved and have continued on maintenance doses outside hospital (Seignot, 1961; Challas and Brauer, 1963; Chapel *et al.*, 1964, Case 2).

Two cases only are stated to have been committed to hospital permanently, one with chronic schizophrenia (Ascher, 1948, Case 1), the other unspecified (Eisenberg *et al.*, 1959, Case 1). Another case is stated to have become "difficult, confused and pre-occupied" around the age of 16 and another to have become so bad by the age of 15 that he had to be excluded from school (Eisenberg, 1959, Cases 3 and 4).

It is worth noting in this section that Bockner's (1959) 2 cases were seen at 65 and 67 years. Onset of symptoms had been around 5 or 6 years but they had managed to carry out normal lives until shortly before they were seen, when vocalizations had become less well controlled and 1 patient had developed obsessional and paranoid symptoms.

Periods of remission are mentioned by de la Tourette. Michael's patient (1957) had been symptom-free for 2 years in the course of his illness, and Chapel *et al.* (1964) state that their second patient's symptoms followed "a fluctuating course". No other mention has been found of this.

Although the drugs mentioned above would appear to have had the most success in treatment, more trials with longer follow-up studies are needed before firm conclusions can be drawn.

CONCLUSIONS

1. Gilles de la Tourette's syndrome is not related to latah, myriachit, or the reactions of the 'Jumpers' of Maine.
2. The incidence of the syndrome is greater in males than females.

3. The age of onset of the syndrome is most often 10 years or younger. In cases with onset later this this, unusual circumstances are present and the disorder follows an atypical pattern.
4. The sequence of development of the syndrome follows, on the whole, the description set out by de la Tourette (1885), i.e. facial grimaces followed by head and neck movements, upper limb and body movements, lower limb movements with vocalizations, first inarticulate then articulate. Approximately half the cases will develop coprolalia.
5. There is insufficient information either on family or personal history from which to draw any conclusions.
6. Intelligence would appear to be normally distributed in the group of patients studied.
7. There seems to be no evidence yet for an organic basis for the syndrome either from neurological examination, EEG report, or autopsy. It may be that, in the future, with more refined techniques of assessment, an underlying organic cause will be found. It seems possible, too, that the use of drugs and our increasing knowledge of their effects on the nervous system and on behaviour will clear the confusion about the etiology.
8. It appears that phenothiazines (chlorpromazine, triflupromazine) and piperazines (trifluoperazine, thioridazine and haloperidol) have been most successful in effecting relief of symptoms. However, these treatments have not yet been followed up long enough for the permanence of their effects to have been assessed.
9. De la Tourette's prognosis of complete degeneration would not seem to be borne out by the data.

SUMMARY

A review of the literature since the beginning of the century on Gilles de la Tourette's syndrome has been made. Forty-four cases have been summarized under the headings of sex, age of onset, form of the development of symptoms, family and personal history of the patients, IQ, neurological and EEG examination, treatments and their outcome. It has been concluded that the prognosis for this syndrome is not as poor as de la Tourette himself predicted, but with increasing knowledge of drugs and their application, the more severely disabling symptoms of this syndrome can be, at least, kept under control, if not removed permanently.

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JOINT SIBLING INTERVIEW AS A DIAGNOSTIC PROCEDURE

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INTRODUCTION

THE following is a report of a child diagnostic procedure in which two siblings are interviewed jointly, or observed playing together, as part of a family evaluation process. Based on this writer's experience with 50 cases, the joint interview appears to be a valuable technique for behavioral diagnosis. It aids in family diagnosis by introducing a standardized observation of specific interacting family members.

The joint sibling interview has several virtues. First, because the child is observed in actual interaction, the interview can provide information having increased generalization to his reactions outside the diagnostic setting.

Secondly, joint interviews lessen some of the artificial nature of a clinical contact with a single child. Alone with an interviewer, many children and adolescents are guarded and self-conscious, and their reactions are far from representative. The first diagnostic interview often results in obtaining the "name, rank and serial number" of the child, but little else. On the other hand, the writer has found that youngsters frequently participate more naturally or readily when their sibling is present. The brother or sister appears able to reduce the inhibiting effect of direct, solitary confrontation with an adult.

Thirdly, as in other family interview procedures, there is an opportunity to evaluate the health of other children in a family, and directly judge their role as a source of strength or threat to the patient.

The direct observation of family interaction has been used increasingly in recent years. Among those who have reported on the diagnostic significance of these observations are Drechsler and Shapiro (1961, 1963), Goodrich and Boomer (1963), and Levinger (1963). Several investigators, Loveland *et al.* (1963), Elbert *et al.* (1964), have reported on the use of psychological tests administered to families en masse.

The joint sibling interview is simply a further addition to the techniques that can be used by the clinician as he tries to understand family patterns. The technique was systematically introduced into the Guidance Clinic diagnostic procedure after a trial interview with two siblings yielded some surprisingly novel observations. Certain relatively standardized aspects have emerged from exploratory work with the method and these will now be described.

Preparation of the family

Usually, there is a period of at least several days between the initial psychological examination of the patient and the joint sibling interview. However, there have been several instances in which the children have been seen together on the first visit.

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Explanation for having the sibling observed is made in advance to the parent and the child. The child is told that we would like him to return for another visit with his brother or sister, while the parent is informed that the examiner makes a practice of seeing several children from the family, since the youngsters seem to act and talk more comfortably when seen together. Occasionally, parents have been wary lest the non-patient sibling be contaminated or angered by the clinic visit, but rarely have they objected vigorously to the routine. One of the fascinating aspects of the technique is the way in which a child will frequently bask in the limelight when his sibling is asked to discuss what he thinks about the patient, even when the comments include negative reactions. Children's evaluation of one another seem more tolerable than the same evaluation from an adult.

Selection of sibling pairs: Age and sex criteria

The age of the patient and sibling determines which of two modes of observation are used. For younger children (roughly 7–8 years of age or less) a play situation is arranged, while for older children, who have more potential for responding to introspective questioning, a non-play interview is the method of examination. In the present series of 50 cases, there were 40 verbal interviews and 10 play interviews. Occasionally, the two types can be combined, as in one case which began as a play session, and evolved into an interview, as the youngsters seemed ready to yield information in the latter mode.

TABLE 1. AGE DIFFERENCE OF SIBLING PAIRS

Non patient sibling older		Non patient sibling younger	
Years older	No. of cases	Years younger	No. of cases
5	2		
4	1	4	2
3	2	3	5
2	11	2	9
1	10	1	6
Twins	2		
Total	28		22

No rigid criteria of age and sex have been used for selecting the non-patient sibling but several rough guides have evolved. Table 1 presents the age differences between the 50 sibling pairs interviewed, according to the number of years separating them. Typically, the next youngest or oldest sibling is selected because (1) the less the age difference between children, the easier it is to arrange an observation situation of interest to both, and provocative of information (play or interview), and (2) generally, the children closest in age are in greater contact, and hence are more likely to have available the capacity for intimate interactions. Even when siblings close in age are found to be isolated, so that interaction and concern are minimal, this proves diagnostically significant from the standpoint of the psychology of the family. Youngsters may say they know little or nothing about the abilities, social life, or problems of each other, in spite of the fact that at least one of them has been known to have a marked problem. On the other hand, two adolescent sisters described their reactions to one another, and at the end of the interview commented that this was the first time each had learned of the other's impressions and reactions, despite thinking they had been relatively close over many years.

In the interview situation with older children, the selection of the next oldest sibling is favored because the older child usually offers the greater supportive features among the siblings, and also because the older child will more frequently have formulated some concept of the patient's difficulties that can be verbalized.

When there are no older siblings close in age to the patient, the next choice is the younger sibling closest in age. In these instances, the patient is observed for such behavior as appropriate leadership role, whether he is cowed by a healthier, more spontaneous younger child, and whether he abuses his role as an older child by attempts to dominate, rather than lead and nurture the younger sibling, etc.

Patient male 10 years, sibling male 13 years

In the joint interview, the older brother D. is able to be reflective about his younger brother's behavior. He interprets it as an inability to stick with something, or overcome frustrations; instead, the patients runs off or gets angry. He points out that the patient has done better for the last quarter when some people have been more firm with him, and he discusses the patient's situation in a rather benign way, without indication of hostile attitudes. The older brother acknowledges that for the past three years he himself has been irritable and does have some things on his mind. He is able to talk in the presence of his brother, sharing information such as this. He is not as spontaneous as the other boy, seems more likely to be a cautious person, and probably stores up feelings over long periods of time. The patient probably has feelings of admiration for this older brother, but his immaturity offers no satisfaction to the latter. The patient does not express dependency that would give D. the satisfaction of acting like an older brother.

In the younger age group the intention is mostly to arrange an interacting play situation, and it is not as necessary to bring out vocal reactions to the patient. From this standpoint it is not as important to favor the selection of an older sibling as the play companion.

The sex of the non-patient sibling appears to matter little in the interview, but in a play observation where the toys are quite sex-specific, the same sex siblings are selected almost exclusively. In only two of the ten play sessions were mixed pairs used, and, for the most part, the play observation was not employed if there was not a same sex child in the family. Of the 40 interview sessions, exactly half were with same sex siblings and the other half were with opposite sex siblings.

Discription of play situation

For the play situation with younger children, the materials offered have been stringently limited and standardized, in order better to compare the behavior of sibling pairs. When the siblings are young girls, a doll house with furniture and several dolls are the only equipment. Young boys are offered three pieces of equipment: a dumptruck, sandloader, and mobile dragline derrick (Tonka Toys). These play items offer opportunity to observe significant behavior in the areas of leadership-submission, cooperation-competition, isolation-interaction, and frustration-tolerance. They are also sufficient for studying sequential behavior of children for periods of up to one hour. The opportunity to watch the growth, change, or deterioration, of play patterns and relationships over time is highly pertinent in evaluating a child's social reactions, as in the following illustration:

Patient female 5 *years, sibling female* 7 *years*

L. is a 5½ year old girl who is referred with the chief complaint of "shaking spells". There is some indication that they are related to crisis situations within the family. The sequence of activities during the interview is something as follows: the doll house and large doll are set up in the office. P., the oldest sister, and L., the patient, sit down together and begin placing furniture in the individual rooms. P. begins by asking L. for direction as to where certain pieces of furniture go. She continues to take a subordinate role verbally, and invites L. to be dominating. We next notice that P. changes the activity and goes to the larger doll and wishes to change sides. Throughout, P. seems to satiate more quickly. When L. is drawn over to playing with the large doll, P. initiates activity for the first time towards the examiner by saying to L., "Ask him how the hat goes on, L.". L. plays with the hat for a while, and does approach the examiner and ask him how the hat is put on. While L. is playing with the doll, P. switches back to playing with the house equipment. In the meanwhile P. gives L. some mild directions about what to do in some of her own activities.

The girls begin interacting with more consciousness of the examiner. L. begins to whisper certain things to P. in the hope of binding their relationship, but P. begins to act more distantly to L. and encourages her to talk up because she cannot hear what she has to say. P. begins to treat L. with increasing distance. P. announces, "I'm tired", but they continue to play at the house for several more minutes, when the examiner terminates the session.

One gets the impression that the older daughter, though inviting the relationship of equal, and even of exchanges of roles with L., changes the situation by methodically dominating it. In spite of the fact that L. may be a fairly intelligent girl, the older child is able to dominate and frustrate some of her enterprise in a very meaningful way.

In the play situation, as contrasted with the interview of older children, the examiner has attempted to be a non-participant. The play materials are kept in the waiting room, and the children are invited to bring them to the writer's office. Once there, the examiner avoids structuring the situation, and ordinarily either ignores comments directed towards him or makes the minimal response possible. The intention is to concentrate on sibling interaction and allow it to develop unrestrictedly. The children usually play together with relative disregard of the observer, or at least with considerably more disregard than if a child were alone in the same situation. In one case, an important diagnostic conclusion was reached based on a child's differential reaction to the two types of situation.

Patient female 5 *years, sibling female* 7 *years*

A 5 year old girl with several phobias is first seen with her 7 year old sister. While with the sister, they both play dolls, are very excitable, animated, and open. Neither shows much consciousness of the interviewer, and they spend a great deal of the time provoking laughter in one another and knocking down furniture and dolls. In contrast, when the sister leaves, and the patient is alone with the examiner, she becomes markedly controlled and less animated. Words have to be "pulled" from her in response to questioning. The rapid change in her reaction is an important factor in evaluating her passive resistiveness to authority.

Description of interview situation

The verbal interview with older children and adolescents focuses on (1) sibling attitudes towards one another, (2) the potential strength and weaknesses in their relationship, (3) the health or pathology of the non-patient sibling, and (4) the sibling's awareness and understanding of the troubles of the patient. Frequently, questioning is begun with little preliminary fanfare, other than establishing the name of the sibling. In one approach, the first questions are directed at the non-patient sibling, and the probing develops as follows:

"Well, what do you think all the fuss is about Jay (the patient)? What is your idea of what is going on?"

"What do you think of Jay as an (older/younger) brother (sister)? Do you find him to be a pest?"

"How does Jay do in school? Is he smart? Does he work hard? Does he ask you for help? (if sibling is older). Does he help you with your work? (if sibling is younger)."

"How does Jay get along with his friends? Does he have many friends?"

Afterwards the patient is given his turn to answer the same questions, other than the first. If necessary, questions are expanded to include any line of diagnosis that might be indicated, but the ones listed above are the core of the interview.

While one child is talking, the other will frequently insert a comment defensively, humorously, or as a qualifier. Insertions are not discouraged because they may lead to representative interactions. However, the core questions are continued when the exchange is completed. The manner in which the siblings talk about one another is observed. Is it derisive? Is there an effort at objectivity? Does the sibling seem to strive toward understanding? Do they regard their disagreements as tragic or accept them in a relatively detached way, and even enjoy fighting? Have other family members set up alliances with, or against, one of the children? There have been instances in which truly hostile and obviously rejecting statements by the sibling have caused discomfort to the patient, and led to hostile or defensive retaliation. But this is actually an advantage of the technique: one sees the supportive, constructive quality of the relationship, or the sibling emerges as potentially rejecting and a weak resource for the patient.

Patient male 10 *years, sibling female* 8 *years*

D. is a 10½ year old boy who is referred with a chief complaint of chronic underachievement in school, and poor motivation towards anything except things he is interested in. In addition, pressure in school appears to correlate with stealing episodes.

We are impressed throughout the interview with the boy and his sister, of the beaten-down quality of his side of the relationship with her. In the interview, he comes off looking quite poorly. His sister is assertive, and begins discussion with D. as to who is smart and who is stupid, in which she eventually stares him down. She also tears him down in comparing him with his father. For example, she says that her father is teaching her to ride a bike and D. can't because he is not strong enough. D. acknowledges that he is not as smart as she is. She also accuses him of getting into mischief and takes a "holier than thou" attitude towards him.

Another way of initiating the interview situation, especially useful when the sibling is younger, is to ask the patient if he told his brother or sister anything about his psychological evaluation after the previous session. The patient is asked if he would like to show the sibling some of the psychological materials that were administered to him. If he assents, Rorschach cards, Bender–Gestalt designs, etc. are brought out, and the patient allowed to show these to the other child. Several times, the patient has literally "administered" the Rorschach, taking over the role of the examiner. In one instance, where the sibling responded to different parts of the ink blot, the older brother kept urging her to try and find something in the "whole picture (as he had done), at one and the same time revealing his need to organize, to exert his will over the sibling, and also his currently poor qualifications as an objective psychologist! The patient is given an opportunity to identify with the threatening or admired examiner, an accomplishment which more than compensates for any loss of glory in sharing the situation with the sibling.

As a variation on the same approach, a test is administered simultaneously to both siblings. For example, both children are shown the Bender-Gestalt designs and they are observed completing their own designs. In two instances an older sibling was found to be functioning on a much less productive and integrated level than the younger patient-sibling.

The above are several methods that have been used in the interview procedure. Other variations which could capitalize on the basic interview situation would not be difficult to develop.

SUMMARY

The writer has been inspired by the work of an increasing number of investigators who are publishing reports on family diagnosis and treatment. Sibling interviews, as described here, represent but a small excursion into the analysis of family life compared to, say, Virginia Satir's (1964) persuasive and intense presentation of family diagnostic techniques.

Nonetheless, it is believed that the procedure presented in this paper in which two siblings are interviewed jointly or observed playing together adds to the diagnostic process by: (1) increasing the flow of discussion and activity: (2) offering an opportunity to judge the health of the sibling, and the supportive or problematic aspects of his relationship with the patient: and (3) providing sequences of behavioral interactions for diagnosis.

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PERCEIVED MATERNAL REJECTION AND COGNITIVE INTERFERENCE*

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THE interfering or competing response has been commonly employed as a theoretical construct to explain impaired cognitive performance (Waterhouse and Child, 1953; Farber, 1954; Rodnick and Garmezy, 1957). The competition of responses has been of special conceptual advantage to those who have pursued the understanding of psychopathologic behavior in terms of some learning framework, such as Hull–Spence theory, which views a manifest act as the currently dominant one within a family of potential responses. Thus, task-relevant, appropriate, and effective behaviors can be replaced or distorted by the intrusion of competing responses which for some reason become dominant. Some clinical phenomena like repression have been effectively treated in this manner (Dollard and Miller, 1950), whereas such behaviors as hallucinations, which clearly represent the intrusion of inappropriate responses, have not yielded as yet to satisfactory theoretical explanation.

Rodnick and Garmezy (1957) have proposed an interference hypothesis to account for the deficient cognitive behaviors of schizophrenics when exposed to socially aversive cues. They reason that the schizophrenic has become extremely sensitive to social censure, primarily because of his experience with a rejecting mother. Social cues denoting censure elicit response sets of a withdrawal-avoidance nature, which are usually incompatible with effective cognitive performance. Although the Rodnick–Garmezy hypothesis has not received consistent support from the studies of schizophrenic performance under conditions of social reinforcement (Buss and Lang, 1965), the more basic and complete proposition, that *given maternal rejection* the schizophrenic offspring will subsequently demonstrate cognitive impairment when exposed to social censure, has not been adequately tested. To do so would require a more rigorous attempt to distinguish between schizophrenics who have experienced maternal rejection and those who have not.

The Rodnick–Garmezy hypothesis, as a first approximation at a developmental law, would be more critically tested by comparison of the cognitive proficiency of *S*s exposed to social censure when those *S*s have been selected specifically on the basis of their maternal child-rearing history. The developmental contingency between maternal rejection and cognitive impairment, given cues denoting censure, should tend to hold whether the offspring is schizophrenic or normal, male or female.

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*This experiment was conducted while the senior investigator was in the Department of Psychology, University of Iowa.

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There is now some evidence indicating that this relationship may be observed among normal *S*s.

College males who perceived their mothers as rejecting were inferior on a concept formation task to those viewing their mothers as accepting (Heilbrun, Orr, and Harrell). Since the conceptual task, the Wisconsin Card Sorting Test (Grant and Berg, 1948), includes negative evaluation (i.e. "wrong") from the experimenter and has been observed to be susceptible to distraction (Fey, 1951; Hall, 1963), a censure-induced, interfering-response interpretation, was suggested. Further indirect evidence regarding the avoidance-withdrawal properties of the interfering response can be adduced from a second experiment with college males (Heilbrun and Orr, a). Given a standard failure condition, *S*s perceiving maternal rejection reduced their levels of aspiration more, on a bogus visual discrimination task, than *S*s viewing their mothers as accepting. The greater reduction in goals for the 'rejected' group can be considered a form of failure avoidance, i.e. reducing the discrepancy between aspiration and accomplishment.

Two parallel experiments employing female college *S*s produced results which were somewhat similar to the male findings, but with some distinct features as well. When females, divided into perceived child-rearing groups, were given the Wisconsin Card Sorting Test, 'rejected' girls (like their male counterparts) were conceptually inferior to 'accepted' girls (Heilbrun and Orr, b). However, the poorest performance was obtained from females describing their mothers as ignoring. Different interpretations were offered to account for the inferior performances of the 'rejected' and 'ignored' groups of girls. It was reasoned that the more active control and open hostility of the mother, which defined rejection, would tend to mediate a reduced sense of competence in the child and an enhanced sensitivity to social censure. Socially aversive cues would readily arouse avoidance-withdrawal responses which compete with relevant cognitive behavior in this type of girl. In contrast, the detached relationships with the mother, implied by ignoring, would tend to mediate a self-protective 'toughness', an insensitivity to others as social reinforcers. Thus, this type of girl would not be susceptible to the arousal of censure-induced, competing responses, but might perform poorly because of a lack of task motivation.

The second experiment with college females (Heilbrun and Gillard) was devised in part to investigate the proposed differences in the factors mediating deficit performance for girls reporting a rejecting, as opposed to an ignoring, mother. Rather simple cognitive tasks were selected and the relative performances of these groups compared under conditions of both positive and negative social evaluation. The intention was to reduce the likelihood of response interference as an important contributor to performance variance, so that the proposed group difference in motivation could be examined. Although the difference indicated that 'rejected' females were more highly motivated by both positive and negative evaluation than 'ignored' females, as predicted, the results were inconclusive since statistical significance was not achieved.*

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*The results of the Heilbrun and Gillard experiment were actually analyzed by an analysis of variance technique which showed a significant motivational effect for perceival maternal control and no effect for perceived nurturance. Specific comparisions between control-nurturance groups were conducted for the present introductory discussion.

In summary, the four experiments conducted to date indicate that both male and female offspring who perceive their mothers as rejecting are more susceptible to cognitive interference than other groups, when negative social evaluation is part of the experimental procedure and the cognitive task is sufficiently difficult. Also, the data suggest that the inferior cognitive performance elicited from maternally 'ignored' girls is attributable to reduced motivational effects of social reinforcement.

To more adequately test these conclusions, a stressful experimental procedure involving negative reinforcement was devised, in which substantial extrinsic incentives were offered to perform well on a cognitive task which is particularly susceptible to response interference. Given comparable task motivation for all *S*s, the hypothesized differential sensitivity of maternally 'rejected' *S*s led to the predictions that:

(1) Females perceiving their mothers as rejecting will be poorer in performance than females perceiving their mothers as ignoring.
(2) Males perceiving their mothers as rejecting will be poorer in performance than males perceiving their mothers as accepting.
(3) Females perceiving their mothers as rejecting will be poorer in performance han females perceiving their mothers as accepting.

Since *S*s perceiving maternal rejection should experience the greatest response interference on the experimental task, it was more generally expected that:

(4) Males or females perceiving their mothers as rejecting should be the poorest in performance among all groups.

METHOD

Subjects

All *S*s were undergraduates attending the University of Iowa. The 45 males and 60 females for the initial experiment conducted during the fall semester, 1964–65, were members of a course taught by the senior investigator. Replication of the experiment during the spring semester, 1965, involved 62 female volunteers from the usual introductory psychology subject pool, and 54 males from another large undergraduate course in psychology.

Child-rearing measures

Perception of maternal child-rearing behavior was measured by using sons' and daughters' ratings on two questionnaires. *S* was administered the Parent Attitude Research Instrument (PARI) (Schaefer and Bell, 1958) with instructions to complete it as the mother would. The 115 statements of child-rearing attitude present four response options, varying from 'strongly agree' to 'strongly disagree', which are scored from four points down to one point. The 23 attitude scales are comprised of five statements each. Two factor analyses (Schaefer and Bell, 1955; Zuckerman, Ribback, Monashkin, and Norton, 1958) have extracted one major factor from the PARI which includes 16 of the scales. Both sets of investigators have identified this factor as indicative of 'authoritarian-control' child-rearing tendencies. Cumulative scores over the 80 items included within these 16 scales defined perceived maternal control for males, with the possible range of scores extending from 80 to 320. Cumulative totals over 13 of these 16 (score range 65–260) were used for females, consistent with previous studies. A description of these 16 scales may be found in Table 1.

TABLE 1. SCALES MEASURING AUTHORITARIAN-CONTROL MATERNAL CHILD-REARING ATTITUDES ON THE PARI, AND MODES OF MATERNAL NURTURANCE ON THE PARENT-CHILD INTERACTION RATING SCALES

PARI Scale Number and Description	Nurturance Rating Scales
2. Fostering dependency*	1. Degree of felt affection
3. Seclusion of mother	2. Degree of physically expressed affection
4. Breaking the will	3. Approval of *S* and his behavior
5. Martyrdom	4. Sharing of feelings
6. Fear of harming baby	5. Concrete giving
10. Excluding outside influences	6. Encouragement of *S*
11. Deification*	7. Trust placed in *S*
12. Suppression of aggression*	8. Sense of security
15. Approval of activity	
16. Avoidance of communication	
17. Inconsiderateness of husband	
18. Suppression of sex	
19. Ascendance of mother	
20. Intrusiveness	
22. Acceleration of development	
23. Dependency of mother	

*Not included in attributed maternal control score for female *S*s.

There is ample evidence supporting the research utility of the PARI as a measure of perceived maternal control from within the series of 10 studies completed to date. Five of these studies employing the PARI (Daniel, 1963; Hall, 1963; Heilbrun, 1960; Heilbrun & McKinley, 1962; McKinley, 1963) have reported a negative relationship between perceived maternal control and the offspring's level of adjustment. There is substantial documentation within the clinical literature (14 studies are cited in Heilbrun and Orr, b) of such a contingency between maternal control and subsequent adjustment of the offspring.

Daniel (1963) found a positive relationship between perceived maternal control, as measured by the PARI, and a similar index derived from performance on selected TAT cards.

A third cluster of experiments in which the PARI has been used as an independent variable has provided results which are internally consistent and externally meaningful in terms of available theory. Heilbrun and Hall (1964) used the PARI in a study which provided support for the social power theory of identification. In addition, the four preceding experiments in the series (Heilbrun, Orr, and Harrell; Heilbrun and Orr, a; Heilbrun and Orr, b; Heilbrun and Gillard) have reaffirmed the usefulness of the PARI.

Ratings upon the Parent–Child Interaction Rating Scale (Heilbrun, 1964) were used to define perceived maternal nurturance. These scales elicit eight ratings of interrelated modes of maternal nurturant behavior (Table 1). Each of the eight ratings was made on a five-point descriptively-anchored scale and a cumulative total score was assigned. The range of attributed nurturance scores extends from 5 (low) to 40 (high). These scales have proven their effectiveness as a research instrument in every study in which they have been employed to date (Hall, 1963; Heilbrun, 1964; Heilbrun and Gillard; Heilbrun and Hall, 1964; Heilbrun and Orr, a; Heilbrun and Orr, b; Heilbrun, Orr, and Harrell).

Consistent with previous studies in the series, perceived maternal child-rearing groups have been defined by the combination of scores attributed to the mother on control and nurturance. Four child-rearing groups result:

(1) 'Accepting' (low control-high nurturant)
(2) 'Rejecting' (high control-low nurturant)
(3) 'Overprotecting' (high control-high nurturant)
(4) 'Ignoring' (low control-low nurturant)

It has been observed by others (Roe, 1957; Schaefer, 1959; Slater, 1962) that *control* versus *granting of autonomy*, and *nurturance* versus *hostility*, represent the two major maternal child-rearing dimensions.

Cognitive task

A version of the Stroop Color-Naming Test (Stroop, 1935) was employed as the experimental task. The material for the task was a 12 × 16 in. (30·5 × 40·6 cm) piece of white cardboard upon which were printed 144 color words (e.g. 'red'). Each word was printed in a different color from that designated by the word as, for example, the word 'brown' being printed in a blue color. Five different words and colors were used: red, brown, blue, green, and yellow. The words and colors were arranged so as to avoid any regularity of occurrence but to maintain an essential equivalence of occurrence throughout the test. No word was printed in the color it named but approximately an equal number of times in each of the other four colors. The 144 words were arranged in 12 lines of 12 words each.

S is instructed to name the color in which each word is printed. Since the highly habituated response to formal language symbols is to read them rather than name their properties, the task requires a mediating self-instructional set to avoid lapsing into the habitual mode of response. Interfering responses, when they occur, would be expected to compete with the self-instructional set; the greater the interference, the more likely that the set would be disrupted and that habitual reading responses (errors) would intrude in place of the color-naming responses (correct responses).

Procedure

The procedures for the intial and replication experiments were the same except for subject recruitment (see *Subjects* section). *S*s were told that the experimenters were investigating the question of whether males or females were more distractable. They were further informed that the experiment was to be conducted in the form of a contest and that to encourage maximum effort a prize of $25.00 would be awarded to the best performer. The instructions specified, however, that to be qualified to win the prize the *S* had to be on the winning male or female side. These general instructions were given at the time of group testing on the PARI and the Parent-Child Interaction Rating Scales.

From one to four weeks later, *S*s were recalled in same-sex groups of from two to five (usually four or five) for the experimental session. The female junior investigator (BJG) acted as *E* for the male groups, and the male junior investigator (SNH) served as *E* for the female groups. Each *S* was required to perform the color-naming task before *E* and the audience of same-sex peers in his group. *S* was instructed to name the colors quickly but special stress was placed upon avoidance of errors. *S* was informed that each time an error was made *E* would say 'wrong', and he would be required to correct his error. After completing his turn, each *S* returned to the audience and was replaced by another *S*. The order of performance on the task was left to vary unsystematically with the child-rearing group, since the *E*'s were not aware of the group assignment of the *S*s.

In summary, the experimental situation was devised to elicit a high level of task motivation from *S* by appealing to competition between the sexes, by offering a substantial monetary incentive for outstanding performance, and by requiring *S* to perform before an audience whose own opportunity to win the money was dependent upon *S*'s level of performance.

RESULTS

Perceived child-rearing groups were defined by splitting the control and nurturance score distributions, separately for males and females in each experiment, as near as possible to the median. The cutting scores defining high and low on each distribution were as follows:

Males	*Females*
Initial experiment:	
high control $\geqslant$ 192	high control $\geqslant$ 145
high nurturance $\geqslant$ 31	high nurturance $\geqslant$ 34
Second experiment:	
high control $\geqslant$ 184	high control $\geqslant$ 150
high nurturance $\geqslant$ 31	high nurturance $\geqslant$ 33

The numbers included in groups resulting from the various high-low combinations are found in Table 2.

The number of times which *S* read the word and was subsequently corrected by *E*, rather than naming the color of print, represented the cognitive error score. Although the range of errors obtained in the two experiments was sufficient (0–21), there was a concentration of scores at the lower end of the range. A square-root transformation of scores $[\sqrt{(\text{score} + 0{\cdot}5)}]$ was used to reduce the skewness and make the data more amenable to parametric statistical analysis.

An initial evaluation of the correlations between Stroop performance and a test of intellectual ability revealed no relationship. Using the composite score on the American College Test Battery, (Abe, Holland, Lutz, and Richards, 1965) the entrance ability test at the University of Iowa, as the index of intelligence, the following nonsignificant correlations were obtained:

(1) initial experiment
males $(N=45)$—$r=-0{\cdot}17$
females $(N=57)$—$r=-0{\cdot}14$
(2) second experiment
males $(N=45)$—$r=0{\cdot}01$
females $(N=53)$—$r=-0{\cdot}16$

Table 2 presents the Stroop error data for the initial and replication experiments.

TABLE 2. STROOP COLOR-NAMING TEST ERRORS FOR MALE AND FEMALE PERCEIVED MATERNAL CHILD-REARING GROUPS

	Perceived maternal child-rearing group													
	Rejected			Accepted				Ignored				Overprotected		
Experiment	*N*	Mean*	*SD*	*N*	Mean	*SD*	*t*†	*N*	Mean	*SD*	*t*†	*N*	Mean	*SD*
Initial														
Males	13	2·27	0·76	13	1·64	0·71	2·11‡	9	1·90	0·58		10	2·14	0·72
Females	19	1·72	0·58	21	1·56	0·63	0·80	9	1·22	0·48	2·19‡	11	1·47	0·89
Replication														
Males	15	2·36	0·97	15	2·51	1·00	0·39	12	2·48	0·97		12	1·99	0·73
Females	20	1·64	0·85	18	1·37	0·68	1·08	13	1·12	0·49	2·04‡	11	1·20	0·65

*Means reported in this table based upon transformed error scores $[\sqrt{}(\text{score}+0{\cdot}5)]$
†*t* values based upon comparison with 'rejected' group.
‡$P < 0{\cdot}05$.

Prediction 1 ('rejected' females poorer than 'ignored' females) received confirmation from both experiments. Prediction 2 ('rejected' males poorer than 'accepted' males) was confirmed in the initial experiment but not in the second. Prediction 3 ('rejected' females poorer than 'accepted' females) was not supported in either experiment. Prediction 4 ('rejected' *S*s poorest performers among all groups) was supported in three of the four experiments.

The failure to replicate the difference between 'rejected' and 'accepted' males in the second experiment represents the only time out of five independent experimental comparisons to date that male groups defined this way have not performed according to prediction. Inspection of the means for the four male groups in the second experiment indicates that the 'accepted' group was the only one whose performance was clearly out of line with the corresponding group in the first experiment. Statistical comparison confirmed this; while the mean error scores of the remaining three groups did not differ from one experiment to the other, the replication sample of 'accepted' males were significantly inferior to their counterparts in the initial experiment ($t = 2{\cdot}81$ for 26 *df*. $P < 0{\cdot}01$). The average number of errors (untransformed) rose from about 2·7 to 6·3. These data, some observations made by the female *E*, and the irregular source of the male *S*s in the second experiment, make it appear likely that inadequate motivation of a few males in the 'accepted' group contributed substantially to the replication failure.

DISCUSSION

The experimental results reported in this paper give fairly consistent support to the hypothesis that offspring of either sex who, in their own eyes, have experienced maternal rejection are more susceptible to cognitive interference when exposed to socially aversive cues than other perceived maternal child-rearing groups. The experimental procedure was devised so that two socially aversive conditions were paramount. One was the requirement that *S* perform a novel task before an audience of peers, with whom he was both competing and cooperating, for the attainment of a substantial monetary incentive and the superiority of the same-sex group. This condition exposed *S* to the stress of competition but, more importantly, it was also geared to enhance the aversive qualities of anticipated failure. The second aspect of the procedure, which was intended to be socially aversive, was *E*'s negative reinforcement of all incorrect responses emitted by *S*, and the requirement that he correct the error before proceeding. Given these conditions, 'rejected' males and females showed the poorest performance on a task devised to be susceptible to cognitive interference, in three of the four comparisons.

Besides the finding that 'rejected' offspring tended to experience the greatest impairment under the socially aversive conditions of the experiment, the likelihood also emerged of a sex difference in the child-rearing group which performs most proficiently under these conditions. Among males the 'accepted' appear to be the most capable of maintaining cognitive proficiency under competitive and evaluative stress conditions, although this conclusion must be tempered by the failure to replicate the findings of the initial experiment. However, previous evidence (Heilbrun, Orr and Harrell) has also indicated that "accepted" males were superior on a socially reinforced concept-formation task, relative to other perceived child-rearing groups; this superior status held on two independent samples, in which the parental referent was the mother in one, and the father in the other.

In contrast to the males, late adolescent girls who depicted their mothers as 'ignoring' performed most capably in the present experiment. Thus, the sex difference also seems to extend to the conditional nature of group differences for females, as compared with the rather stable difference patterns obtained with 'accepted' and 'rejected' males. In the three experiments conducted to date which compared 'ignored' girls to the other perceived child-rearing groups, this group was the poorest on a socially-reinforced, concept-formation task (Heilbrun and Orr, a), one of the two poorest on both visual discrimination and perceptual-motor type tasks given under negative and positive evaluative conditions, respectively, (Heilbrun and Gillard), but the best performing group in the present study.

The findings of these three experiments are consistent with the second major hypothesis of the present investigation; namely, girls perceiving their mothers as 'ignoring' in their child-rearing behavior tend to develop a generalized insensitivity to social evaluation, and not the hypersensitivity to evaluative cues found among 'rejected' girls. The series of experiments have varied procedurally so that differing cognitive tasks have been given under varying social evaluative and incentive conditions. The hypothesis would require 'ignored' girls to do relatively poorly unless task motivation was enhanced by special incentives; 'rejected' girls would suffer the greater impairment when the social aversive qualities of the experiment were paramount and/or the cognitive task were especially susceptible to response interference induced by social aversiveness. In the first experiment (Heilbrun, Orr, and Harrell), the magnitude of incentive for superior task performance (e.g. experimenter urging to perform well) was not exceptional, and the concept formation task was one susceptible to interference. Both the 'ignored' and 'rejected' girls displayed inferior performance levels relative to the remaining perceived child-rearing groups. The second experiment (Heilbrun and Gillard), like the first, employed experimenter urging as performance incentive, but the likelihood of response interference was reduced by the use of simpler cognitive tasks. The performance of 'ignored' girls remained inferior, whereas 'rejected' girls were among the better performers; the group difference, however, was not significant. In the present experiment, incentives were substantially increased, while the cognitive task was chosen for its susceptibility to interference. Under these conditions 'ignored' girls were superior to the 'rejected' group.

To date, then, research indicates that differences in perception of maternal child-rearing practices mediate different levels of cognitive proficiency under evaluative stress for girls, but any one child-rearing experience may be associated with superior or inferior performance, depending upon the properties of the cognitive behavior being investigated, the nature of the evaluative cues, and the incentive conditions under which the cognitions are being elicited. With boys, however, evidence on this point suggests a simpler set of contingencies; 'rejected' males are usually the most impaired and 'accepted' males the least. However, the experiment in which male child-rearing groups are compared on simpler cognitive tasks which are less sensitive to competing responses has yet to be conducted.

SUMMARY

The cognitive proficiency of males and female college *S*s differing in perceived maternal child-rearing experience was tested under conditions involving evaluative and competitive stress. Initial and replication experiments included 99 males and 122 females. 'Rejected' males were inferior to 'accepted' males in one of the two experiments, whereas 'rejected' females were less proficient than 'ignored' girls in both experiments. Interpretation of the findings was extended in terms of the eliciting of interfering responses by negative social evaluative cues, and generalized insensitivity to social evaluation.

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SOME RELATIONSHIPS BETWEEN EARLY RHEUMATIC FEVER, INTELLIGENCE AND ANXIETY SCORES

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INTRODUCTION

THERE are several severe childhood diseases whose effects do not involve central nervous system damage. Yet a number of experimental studies (Ack, Miller and Weil, 1961; Fernald and Arlitt, 1925; Wagenheim, 1959; Worden and Vignos, 1962) support clinical opinion that serious illness, especially early in life, can be detrimental to intellectual and emotional development (Green and Rothenberg, 1953; Bellak, 1952; Clark, 1934; Cruickshank, 1955).

This study was undertaken to compare the current intellectual and emotional functioning of children who had had rheumatic fever at differing ages. Rheumatic fever, a disorder rarely studied with careful controls, is especially pertinent in exploring childhood illness. Patients are unusually homogeneous in demographic characteristics, almost all coming from homes in the lowest socio-economic stratum. Moreover, the illness most often occurs after streptococcal infection any time from age two or three up to late adolescence. Such children are usually hospitalized for a week up to several months, then followed monthly for prophylactic treatment at outpatient clinics. The illness involves danger to the heart, which even young children know is a vital organ of the body.

METHOD

Design

Two samples each of 25 children who had had rheumatic fever were chosen for study. Children in one sample had it before the age of six (hereafter called the Before Six group). Children in the second sample had it after that age (now called the After Six group). Both groups were compared with their respective siblings. The age of 6 years was chosen for the dividing line between the two samples for several reasons including developmental considerations, compatibility with other studies, and the logical pre-school–school division in the United States. A sibling control design was utilized to reduce the chance of random disparities in score variance, and to help hold constant any socio-economic differences between experimental and control groups.

Subjects and controls

The two samples of 25 children each were chosen randomly from the rheumatic fever outpatient clinic lists of four Cleveland, Ohio, hospitals. The 50 boys and girls had to be at least of school age and not yet 16. Siblings nearest in age and of the

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same sex as patients were chosen as controls. Siblings had also to be of school age and not yet 16; could not have had rheumatic fever at any age; could not have been hospitalized at any age for an illness of any kind longer than the time their brother or sister had been hospitalized for rheumatic fever.

Mean age of patients and siblings in each group is shown in Table 1. In none of these comparisons is the mean difference significant at the 0·05 level of confidence. Age difference between Before Six patients and siblings as a group, and the After Six patients and siblings as a group, was not considered as an important confounding variable because revised I.Q. score tables were used, making age levels comparable. This is also true for male and female age comparisons within each of the groups.

Measures

The Stanford–Binet Intelligence Scale, Form L–M, was selected as the intellectual measure to make this study comparable with others and because it has revised I.Q. tables helping to equate scores of similar value from one age level to another (Terman and Merrill, 1960).

As the measure of emotional functioning, the Test Anxiety Scale and the General Anxiety Scale for Children were chosen for their pertinence in the study of children with a history of severe illness, as reported in the validating studies of the scale (Sarason, Davidson, Lighthall, Waite and Ruebush, 1960). Both scales are questionnaire. The Test Anxiety Scale has 30 items concerned with classroom and test situations. The General Anxiety Scale has 45 items (11 comprising a lie scale) covering a broader range of situations.

All children were tested alone in their homes, balancing the order of testing patient or sibling first, and alternating the order of tne kind of test given first.

Statistics

Although not a true interval scale test, Stanford–Binet Intelligence Scale data have been generally treated as parametric measures. In this study, comparison of patient and sibling I.Q. scores was done by means of a *t*-test for the distribution of *differences* between paired variates (Alder and Roessler, 1960).

The anxiety scales are not interval measures, hence a nonparametric measure of differences is required. Siegel (1956) suggests the Wilcoxon Matched-Pairs, Signed-Ranks test as the nonparametric equivalent for the *t*-test.

To permit comparison between correlations for interval data from intelligence tests and ordinal data from anxiety scores, all correlations were computed with the nonparametric measure, the Spearman Rank Correlation Coefficient (Rho).

RESULTS

Mean differences

Intelligence. Stanford–Binet scores for patients in the Before Six group (Table 1) had a mean of 97·88 I.Q. points, compared with 101·64 I.Q. points for siblings. This is a significant mean difference of 3·76 points ($P < 0{\cdot}05 > 0{\cdot}01$ in a one-tailed *t*-test). The 10 girl patients earned a mean I.Q. score of 95·2, significantly below their sisters' mean score of 104·7 ($P < 0{\cdot}01 > 0{\cdot}001$ in a one-tailed *t*-test). No other group or sex comparison of differences was significant.

TABLE 1. MEAN AGES AND TEST SCORES FOR PATIENT AND SIBLING GROUPS

	No.	Mean Age	S.D.	I.Q.	S.D.	Test anxiety scale	General anxiety scale
Before Six							
Patients	25	9·9	3·2	97·88	14·9	14·92	27·04*
Siblings	25	9·7	3·2	101·64*	14·3	12·28	21·44
Male patients	15	9·8	2·1	99·60	13·4	12·53	24·53
Brothers	15	9·9	3·3	99·66	13·5	12·40	21·00
Female patients	10	11·6	3·4	95·20	14·14	19·00*	30·80*
Sisters	10	10·3	2·7	104·7†	14·91	11·60	22·10
After Six							
Patients	25	11·7	2·1	97·16	10·76	16·28	29·08
Siblings	25	11·2	1·5	97·80	12·59	14·80	27·88
Male patients	12	12·3	2·5	95·58	8·09	16·75	28·00
Brothers	12	12·0	2·3	93·75	9·66	15·59	28·25
Female patients	13	11·3	1·7	98·6	8·88	15·85	30·08
Sisters	13	10·8	2·7	101·5	13·10	14·08	27·54

*$P < 0{\cdot}05$. †$P < 0{\cdot}01$.

Anxiety. Mean score differences between Before Six patients and their siblings was significant only for the General Anxiety Scale (Table 1). However, for the 10 girl patients the average Test Anxiety Scale score was 19·0, compared with their sisters' average of 11·6, a difference of significant proportion ($P < 0{\cdot}05 > 0{\cdot}02$). Score differences were not significant for After Six patients either as a group or by sex. On the General Anxiety Scale, average score for Before Six patients was 27·04, with 21·44 for siblings, a significant difference ($P < 0{\cdot}05 > 0{\cdot}02$). For the girl patients here, the average was 30·8, significantly higher than their sisters' mean score of 22·1 ($P < 0{\cdot}05 > 0{\cdot}02$).

Lie Scale differences between patients and siblings in both groups were not significant.

Correlations

Intelligence. Correlations between intelligence test scores of patients and their siblings were computed to determine whether differences obtained could be the result of a skewed sample in which siblings' test scores might not resemble, as expected, scores of members of the same family. Correlations were significant for the full 50 pairs, for each half of the total sample, and when taken by sex (Table 2). In all instances, the correlations were generally higher than those reported in other studies (Maxwell and Pilliner, 1960; McNemar, 1942).

Anxiety. Correlations between raw scores of the full 50 patients in the study and their siblings were low for both anxiety measures, though that for the General

TABLE 2. RANK CORRELATIONS FOR INTELLIGENCE AND ANXIETY RAW SCORES

	No.	I.Q.	Test anxiety	General anxiety	Intelligence and test anxiety	Intelligence and general anxiety	Test anxiety and general anxiety
Patients and siblings	50	0·70†	0·14	0·23*			
Patients	50				− 0·39†	− 0·28*	0·78†
Siblings	50				− 0·28*	− 0·23*	0·68†
Male patients	27				− 0·48†	− 0·34*	0·87†
Male siblings	27				− 0·44*	− 0·26	0·78†
Female patients	23				− 0·26	− 0·28	0·59†
Female siblings	23				− 0·27	− 0·11	0·51†

$^*P < 0\cdot05$. $^\dagger P < 0\cdot01$.

Anxiety Scale (0·23, $P < 0\cdot05 > 0\cdot01$) was significant. The low correlations are to be expected from the study's supposition that the rheumatic fever experience has left an emotional imprint on the patients that their siblings would not be expected to have.

Raw scores on the Test Anxiety Scale were significantly correlated with raw scores on the General Anxiety Scale for the full 50 patients (0·78, $P < 0\cdot01$), the 50 siblings (0·68, $P < 0\cdot01$), 27 male patients (0·87, $P < 0\cdot01$), their brothers (0·78, $P < 0\cdot01$), 23 female patients (0·59, $P < 0\cdot01$) and their sisters (0·51, $P < 0\cdot01$). This seems to indicate that a child tended to be consistent in the degree to which he revealed anxiety in one scale compared to the other.

Intelligence and anxiety. A number of correlations were computed to see whether I.Q. and anxiety test scores varied together. No significant correlations were found between ranked intelligence test score *differences* between patients and siblings, and ranked anxiety test score *differences*. This may be interpreted to mean that anxiety differences between patients and their siblings do not seem to depend on whether a brother or sister is brighter or not as bright, as measured by the intelligence test.

When *raw scores* on intelligence and anxiety tests were ranked and correlated, these were significant in a negative direction, as expected, for both patients and siblings, and also significant for boy patients as a group, and their brothers in the case of Test Anxiety. Even where non-significant, the correlations were in the expected direction regardless of sex, for both patients and siblings. (Table 2.)

Special variables. To explore possible sources, other than sex, in accounting for significant differences in intelligence and anxiety between patients and siblings in the Before Six group, a number of special variables were examined.

1. Specific age of illness onset was ranked and correlated with test score differences in intelligence and anxiety between patients and siblings in the Before Six group. No correlations were significant, either for the whole group or for the sexes separately. Trends did suggest that the earlier the onset, the lower the intelligence score, and the higher the anxiety score, of patients compared with siblings.

2. Testing patient first or sibling first made no significant difference on either

intelligence or anxiety scores when each group of the total sample was split into pairs based on whom was tested first.

3. Time spent in the hospital for the Before Six group was longer (mean of 70·76 days) than for After Six patients (mean of 44·04 days). The younger the child at the time of illness, the more chance of cardiac involvement and hence the longer treatment and observation period. However, no attempt was made to correlate time in the hospital with the test data because this variable is inextricably interwoven with the effects of early onset.

DISCUSSION

This study has shown that girls with rheumatic fever before age six score significantly lower on intelligence and higher on anxiety measures than do their sisters. Children of either sex, afflicted after six, showed no significant differences on any of the measures, compared with their siblings. Prudent interpretation of the findings is necessary on several counts.

First, although the negative correlations of intelligence and anxiety scores are significant, they suggest but do not prove cause–effect relationships. Another issue is whether admission of more anxiety items by patients compared with siblings means this anxiety follows specifically from having rheumatic fever at a certain age. In the author's opinion, it is not the illness alone which can account for the existence of heightened anxiety awareness in a child many years after his actual confinement for the disorder. It is only in the total context of the experience, including innumerable factors such as separation from the parents, lingering parental concern, previous experiences, outlets found for expressing anxiety, understanding of the illness, etc., that residual emotional effects can be contemplated. What emotional experiences come later must also have their impact, especially where these are connected with the patient's physical health. One may also have reservations about the limitations of the anxiety scales in their questionnaire form, and the relatively small scale of the investigation, especially when samples halves are split to check special variables.

Intelligence score differences

The highly significant correlations between patients' intelligence test scores and those of their siblings make all the more striking the significant differences between the scores of girl patients in the Before Six group and their sisters. The fact that these girls share the same home and cultural environment affords difficulty in looking here for an explanation of the differences, thereby strengthening the focus of the rheumatic fever experience as a source of the difference.

The I.Q. means of patients in the After Six group are almost identical with those of patients in the Before Six group. Were not the Before Six *sibling* group available for comparison, it would appear that the mean I.Q. score for Before Six patients was not unusual. This has important implications for those studies which simply compare patient I.Q. means with those for a test standardization sample and find no difference.

Anxiety score differences

Sex comparisons provide the strongest indication of the source of significant differences between Before Six and After Six pairs of patients and siblings on the anxiety scores. Where sample halves are split by sex, it quickly became apparent that girl patients in the Before Six category were significantly lower on intelligence test scores and significantly higher on both anxiety measures. Interestingly, a trend of similar sex differences also appeared in the After Six group, but it did not reach significance even though there are more girl pairs involved.

In actuality, nine of the 10 girl patients in the Before Six segment have intelligence and anxiety scores which make the differences significant. This seems to rule out the possibility that one or two cases in this group are markedly skewing results for the rest of the females. The similar trend in the After Six female patient-sibling comparison emphasizes the importance of the sex variable.

For these nine, mean age of illness onset is 4 years, 7 months. The Before Six group mean is 4 years, 6 months. They spent an average of 47 days in the hospital with rheumatic fever, against the group average of 71 days. Time elapsed since rheumatic fever hospitalization was 6 years for these girls against a group mean elapsed time of 4 years, 7 months. Their age at testing was about a year more than the group mean. Whereas mean age differences between patients and siblings for the whole same half is 3 years, 5 months, for the nine girls the figure is 2 years, 11 months.

From these data, we can conclude that the nine girls were not different from the other Before Six patients in age of illness onset. They spent less time in the hospital, suggesting they were not as seriously ill as the other patients in the study. At the time of testing, the girls had been out of the hospital longer, were older at least by a year, and generally were born about three years before the sibling against whom they were tested.

Considering now some potential explanations for the clear-cut sex differences in the Before Six group, the simplest one is the older age of the nine girl patients at time of testing. Previous findings (Sarason, *et al.*, 1960) suggest that anxiety scores on the two scales do increase by grade age. However, the age difference does not explain the significantly lower intelligence test scores as age is controlled. Moreover, comparison of patients with older or younger siblings revealed no significant differences for anxiety scores, although comparisons were for the Before Six sample as a whole. The possibility of an age-sex interaction effect cannot therefore be excluded, but sample size limitations make it impossible to pursue it in this study.

Earlier investigations have found girls more detrimentally affected by anxiety when faced with complex intellectual tasks (Castenada, Palermo and McCandless, 1956; Harleston, 1962; McCandless and Castenada, 1956), and more concerned about their health than boys (Pintner and Lev, 1940). The fact that Test Anxiety Scale differences as well as General Anxiety Scale differences are significant for the Before Six girls in the present study indicates that they feel discomfort about scholastic competition, as well as experiencing the more pervasive, multi-situational anxiety it was expected the General Anxiety Scale would measure. The Test Anxiety Scale scores have been more predictive of lower intelligence test scores than the companion scale (Sarason, 1963; Sarason, *et al.*, 1960), but the presumption must be that where both scale scores are high for specific individuals, then interference with intellectual performance is much more likely, as in the case of the nine Before Six female patients. It may be that when tested in a situation announced to be connected with rheumatic fever research, anxiety responses interfered with the intellectual efforts of the girl patients. If this is so, we must posit some interaction effect on anxiety scores between sex of the patient and the age at which an illness occurs, since girl patients in the After Six group score lower than boy patients of that group on the Test Anxiety Scale. Other possibilities exist, and the real value of the hypothesis offered can be ascertained only with a cross-validation study that would replicate the results of the current investigation.

SUMMARY

This study compared two groups each of 25 rheumatic fever patients and their siblings, randomly chosen and paired according to certain criteria. All were tested with Form L–M of the Stanford–Binet Intelligence Scale, and with the Test Anxiety Scale and General Anxiety Scale for Children. Half the patient sample had had the illness before age six, half after that age.

Results showed girl patients in the Before Six group had I.Q. scores significantly lower than their sisters and scores on the anxiety measures significantly higher than their sisters. The implications of this study, among other things, suggest that age at which a serious illness occurs to a female child may have an important bearing on the level of conscious anxiety she experiences, which may in turn be detrimental to the child's intellectual functioning later on.

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BEHAVIOR REHEARSAL AS A TECHNIQUE IN CHILD TREATMENT

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INTRODUCTION

SINCE its inception, behavior therapy has been characterized by the development and innovation of a wide range of technical strategies. Beginning with the earliest work of Jones (1924), and Rayner and Watson (1920), new approaches based on learning theory have continued to proliferate, providing the therapist with a considerable armamentarium in the treatment of neurosis. However, as Rachman (1962) has pointed out, the focus in the investigation and treatment of behavior disorders has been on work with adults, and relatively less in the area of children's disturbances. Rachman ascribes this disparate advance to the difference in the nature of disturbances in children and adults. Whereas adults manifest behavior patterns which are unadaptive and must be broken down, children are more often seen for their inadequate or inappropriate development of desired behavior. While this is often the case, children are frequently seen who require help in breaking down behavior patterns, as well as those who need to adopt developmentally appropriate behavior.

This is particularly so with children whose primary disturbance is manifested in the expression of inappropriate aggression and hostility towards their peers, parents, or other authority figures (most often teachers). Such children are readily provoked into rage and 'acting out' by minimal instigation. While the roots of such behavior are often traceable to parental practices (Bandura, Ross and Ross, 1963; Schaefer and Bayley, 1963; Sears, Maccoby and Levin, 1957) and can often be modified by parent counselling, more immediate intervention is frequently required, particularly with older children. As is well known with such children, efforts to point out the unadaptive nature of their responses are met with little or only temporary success. Even when the child states that he knows he has nothing to gain by expressing anger, he often feels powerless to resist striking out against real or imagined provocation. This paper is a report of an attempt to apply learning theory principles to the treatment of such children. Since children on the whole appear to have difficulty in deliberately producing the vivid visual images necessary for desensitization therapy, a method which more closely approximates the elements of the instigatory situation is required. The method, as it has developed, involves the use of role-playing or behavioral rehearsal, whereby various instigatory situations are played out by the child and, in the case of group therapy, by various members of the group.

METHOD

While there are many variations of the technique, that which has proved to be clinically most useful requires the elicitation from the child of various situations

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which in the past have provoked him to aggression or defiance. These situations are then presented, through acting, in a hierarchical manner, with the mildest situation presented initially. As the child develops tolerance for these mild situations, those of a higher instigatory valence are gradually introduced. An arbitrary point score is constructed and the child's responses to instigation are rated by other group members and by the therapist.

An example of such a scoring system is: Two minus points for overt expression of aggression, e.g. striking out; one minus point for an 'emotional' response, e.g. flushing, clenching fists, tightening of the facial musculature, etc. No points are given for a neutral response. On the positive side, one point is scored for a passive reaction, as for example when the child goes 'limp' as he is lifted or pushed. Finally, two points are given for a reaction involving a verbal response which in some way serves to disarm or mollify the instigator. The point system, as noted, is an arbitrary one and can doubtless be improved. However, in practice it serves to quickly differentiate for the child which behaviors are acceptable, and which are not. Moreover, the points received by the child, and possibly more important, the approval he wins from the group for particularly ingenious responses, may be conceptualized as a form of social reinforcement.

The procedure is one which children find enjoyable—often, of course, because (for the instigator) it serves as a way of expressing aggression, albeit a socially acceptable one. That is, the instigator is helping the other child to inhibit his own aggression, and as such is functioning in a therapeutic manner. Even the child who is provoked finds his role bearable, since it will be his turn next to play the part of the instigator. Even extremely passive children, who fear aggression, gradually find behaviour rehearsal is not threatening in the context of the protective therapy setting.

Other variants of the technique can be used with children who are not physically aggressive, but who, for example, are having school difficulties because of 'clowning' or who express hostility or defiance by facial or gestural cues. Of course such behavior is often based on underlying difficulties, which can be helped by insight therapy. However, one is impressed by how often a child appears to have obtained genuine insight into the basis of his behavior, and yet finds it difficult to change an established pattern. In such cases, behavior rehearsal would seem to be a valuable adjunct.

In practice, the method draws upon the techniques of psychodrama (Moreno, 1959), that described by Wolpe (1958) in establishing assertive responses, and to training given to civil rights workers in passive resistance (Belfrage, 1965). Recently, young Negro children have been prepared for entry into desegrated schools by subjecting them to sorts of abuse they might expect upon entering the school. Because such preparation is often traumatic for young children, the attrition rate prior to entry has reportedly been high, and it has been suggested that gradual introduction to a hierarchy of provocation would be less traumatic (Gittelman, 1964).

CASE ILLUSTRATION

To illustrate behavior rehearsal with children, a case is described. The context of the treatment was in a group of seven boys ranging from 12–14 years of age who met for 2 hr each week as outpatients at a community mental health clinic. The group was mixed, in the sense that three of the boys presented varying degrees of 'acting out' behavior, one child was extremely constricted and fearful of aggression, and the remaining three showed a variety of problems. Most of the children were having learning difficulties as well as problems in the home.

One of the group members, Ralph, a 13-year-old whose parents were divorced and who lived with his mother, presented the greatest problems in the expression of aggression. His temper outbursts had proved so violent that he had been expelled from one school and was threatened with expulsion from his new school. The boy was extremely small in stature, giving the impression of a child some 2 or 3 years younger. It is likely that this was due to the fact that he had been a premature infant, weighing only 2 pounds 10 ounces (1·19 kg) at birth. Despite his prematurity and a slow rate of physical growth for the first 6 months, development had proceeded within normal limits and no signs suggestive of cerebral dysfunction could be inferred from his developmental course. Intelligence testing as well as clinical impression indicated that his intellectual functioning was in the high average range. While he was extremely small in size, he was physically agile and an excellent fighter, feared by many of his peers and, most likely, by some of his teachers.

Ralph's pattern of response to stress was generally as follows: The slightest stimulus would cause him to feel singled out and provoked. Another child who might brush his shoulder in passing, or a teacher's ciriticism of his work, would cause him to become enraged. Under these conditions, he would respond impulsively, striking out at the other child without waiting for an apology or explanation. During his first sesssion with the group, Ralph provided an example of how easy he was to provoke. While presenting the group with his background and school difficulties, one of the group members asked him whether he was a 'good fighter'. Ralph turned quickly to the boy, his eyes narrowed in anger, and said "You want to try me?" With his teachers he could not resist answering back and was at all times prepared to strike out. In discussing these incidents in the group, he reported feeling that unless he responded aggressively others would think him weak and he would face even greater provocation. Ralph's difficulties had approached a crisis point when he threatened to kill his mother's boy friend with a knife. Following this incident, Ralph said that he understood his reaction was inappropriate and that he felt anxious and guilty, but felt powerless to inhibit his immediate uncontrolled reaction.

Treatment with Ralph proceeded along lines previously described. Behavior rehearsal was initiated after four 2-hr weekly sessions. Ralph was first asked to describe, in as great detail as possible, situations which aroused unadaptive affective responses. Subsequently several of the situations were acted out with Ralph and the therapist, or another group member, alternating roles. This was done to provide a more detailed picture of Ralph's behavior, but was also incidentally found to be useful in suggesting alternative modes of behavior to him. Following this procedure, the group members alternately acted out instigating and provocative situations. Initially only the largest group members were used, since Ralph found himself unable to refrain from striking out. A hierarchy of provocative situations was then constructed and individual group members each acted out one. In practice it was not possible to follow the usual formal course of desensitization, proceeding from the least to increasingly provoking situations, since the group members differed in their ability to make 'real' the instigatory situation. However, a gradient of provocative situations was generally adhered to, and ratings made of Ralph's reactions. Illustrations of some of the instigatory situations presented to Ralph, as well as his initial response, included: (1) Being approached and 'accidentally' bumped, with an immediate apology made by the instigator (low intensity reaction). After Ralph was able to tolerate this provocation, the situation was modified by having the instigator follow the 'accidental' brushing with an attempt to provoke Ralph to fight. This was done initially by verbal provocation (e.g. implying that Ralph was cowardly for not responding). Still later, physical instigation was used such as pushing, stepping on his toes, and lifting him. (2) Another situation presented to Ralph involved the enactment of a robbery (high intensity reaction). In this situation the aggressor asked Ralph to empty his pockets, remove his tie and jacket. As the situation was enacted, Ralph was constantly rated by the group. For example, when he slowly complied with the demands to empy his pockets, he was given one negative point. In contrast, he was give two plus points when, as the instigator carefully folded Ralph's tie and placed it in his pocket, he commented that he (the instigator) was welcome to it and did he also need a wristwatch? (3) With two group members acting as classmates and one playing the role of teacher, Ralph was subjected to a number of instigatory situations. Following a pre-arranged plan, developed while Ralph waited outside the room, the boy sitting next to him asked him a question. The 'teacher', who pretended to be writing on the blackboard, turned to Ralph and asked him to be quiet. One plus point was given him when he did not proclaim his innocence. While Ralph was initially unable to inhibit aggression in the early scenes, he was gradually able to avert rage, but still showed signs of anger, clenching his fists, flushing, etc. Still later, following his chance to provoke several of the other boys, he was noticeably able to tolerate increasingly instigative acts. After the formal aspects of the game, the group was encouraged to discuss their subjective reactions to the roles they had played.

After four group sessions in which behavior rehearsal was employed, Ralph reported a considerable improvement in his behavior out of the group. At that point he had completed eight weekly two-hour sessions over approximately a two and a half month period. He said that while he often felt angry and provoked by many situations, he now felt much more able to inhibit aggressive responses. While he continued to have difficulties in school, involving learning problems, his school guidance counselor reported much diminution of his aggressiveness, which had previously been almost a daily occurrence. Follow-up lasted four months after therapy was initiated, with consistent absence of any major 'flare-ups'. Post-treatment follow-up and direct examinations were precluded when he stopped treatment on moving to another city, after having attended some 12 group-meetings. However, contact with Ralph's mother nine months after termination revealed that he continued to show progress in his school work and had not shown a further outbreak of impulsive or aggressive behavior.

Conceptually, behavior rehearsal with children may be viewed as an attempt to intervene in, or inhabit, unadaptive responses and provide and reinforce more socially acceptable alternative responses. In children who exhibit impulsive and aggressive behavior and who are motivated to change, the technique may serve a useful therapeutic role.

SUMMARY

This paper describes a technique in the treatment of aggressive, 'acting-out' children in an out-patient group setting. The method involves the use of role-playing or behavior rehearsal, whereby various instigatory situations are played out by the child and other group members. While the technique is similar in many respects to psychodrama, an effort has been made to introduce certain learning theory concepts, particularly that of desensitization. A case illustrating the technique is presented.

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BOOK REVIEWS

Contemporary Schools of Psychology (9th edition). R. S. WOODWORTH and MARY R. SHEEHAN. Methuen, London, 1965, pp. x + 457. 45/-.

THE new *Contemporary Schools*, which now appears in an English edition, has been extensively added to and revised. Alas, it cost four times as much as the eighth edition when it first appeared; but the reader certainly gets a good deal extra for his money. The format and type of the book have been improved. There is much new material and the book is nearly sixty per cent longer than it was. Moreover there has been a substantial re-writing of even the older parts, improvements in wording and expression, modifications of emphasis, and occasional discards. It is nice to know that a great deal of this revision was the work of Woodworth himself in the years just before his death. Mary Sheehan, who collaborated with Woodworth in an earlier book, has ably completed the task. It remains, as it always was, a first-class book, and quite invaluable as an introduction to contemporary psychology.

The most important additions to the book are the introduction of a considerable amount of material on the work of European psychologists. As the final chapter notes: "much more prominent in the moving throng are distinguished representatives of other nations. We (Americans) had become provincial for a generation or two in our attitude toward psychology, thinking of it mostly as a domestic product." To some extent, though perhaps still insufficiently, this provincialism has gone. The only living British psychologist to receive more than passing mention is Eysenck. Piaget, Michotte, Nuttin, Wellek, Ivo Kohler, however, receive mention, some of them at length, and perhaps even more remarkable there is an entire chapter on Soviet psychology. American psychologists still, however, dominate the scene. There is a new chapter on recent offshoots of behaviourism and the nature of mediating processes which includes an account of the work of Hebb, Harlow, Mowrer, Osgood, the mathematical learning theorists and the information theorists; a substantial section on newer psychoanalytic developments associated with the names of Hartmann, Kris, Rapaport and Melanie Klein; and a re-casting of the chapter on "Hormic and Holistic Psychologies" which is now entitled "Motivation and the Unity of the Person" and which contains an account not only of American personality psychologists like Allport, Murray and Rogers, but a short introduction to existential psychology.

Perhaps the chapter on Soviet Psychology is the least satisfactory section of the book. It bears all the marks of having been written at second-hand from surveys by Razran, Brozek, Mintz, Simon and others, and the occasional contributions of Soviet psychologists to international congresses. This would not matter if the final outcome had been an adequate report of contemporary Soviet psychology. Unfortunately it is not. No account of Soviet psychology which fails to mention Vigotsky, the source of much contemporary Soviet work, as well as omitting Luria and Leontiev, the two most prominent living Soviet psychologists, can possibly be regarded as adequate.

Contemporary Schools still professes to adhere to "the middle of the road". But the final chapter with this title is an entirely new chapter, and the middle is a different middle. "One of the features of the present scene which distinguishes it from that of the first half century has been the increased attention to long neglected central factors in behavior". The molar aspects of human behaviour—plans, thought processes, self-identity—have brought into psychology a new emergent dimension. "The schools are still with us"—but their outlines are blurred. Perhaps by the time a tenth edition of this book is needed, the schools will have become, not divergent systems, but strands in a contemporary history.

L. S. HEARNSHAW

Ventures in Criminology—Selected Recent Papers. SHELDON and ELEANOR GLUECK. Tavistock Publications (International Library of Criminology), London, 1964, pp. 373. 65s.

TWENTY-FIVE years ago these two authors began what has become the world's best known study of delinquency. They compared 500 persistently delinquent juveniles with 500 non-delinquents matched, pair by pair, for age, ethnic origin, intelligence and area of residence. With the aid of a team of experts, they assembled extensive personal and social histories, psychiatric examinations, psychological evaluations (including projective tests) and measures of physique. Furthermore, they followed up their samples for fifteen years so as to relate adult criminal careers to early background factors.

More analysis of the follow-up material is envisaged, but the initial results of this work have been published over the course of the last fifteen years in a series of monographs. The present book consists of a collection of the Gluecks' contributions to conferences and periodicals during the years 1953–63, for the most part dealing with aspects and implications of their monumental project. Inevitably the overlap between chapters is considerable, and the recapitulations of the plan of their study repetitious.

For those unfamiliar with their major monographs these papers give some interesting, although rather tantalizingly allusive, descriptions of findings. The surprisingly close connection between mesomorphic physique and delinquency potential, the bad effects of fathers who make poor models for their sons, and the results of disharmonious and uncohesive family backgrounds are all discussed. Many sensible points are made; for instance the fact that delinquency appears to result from the interaction of a constellation of factors rather than from any single identifiable feature, and the fact that the characteristics of the individual as well as the environment determine the final outcome.

One of the more controversial chapters concerns the possibility of predicting from background factors which boys will become delinquent in later years. The Gluecks claim to be able to do this effectively, but this has been much disputed. Their replies to some of the criticisms are given here.

The last chapter is in some ways the most interesting, since it outlines plans for future research One of the most important concerns the splitting up of the heterogeneous group of general delinquents into those following different types of delinquent careers, and the relation of these types to the kind of background from which they come.

D. J. WEST

Adolescents Out of Step. Their Treatment in a Psychiatric Hospital. PETER J. S. BECKETT. Wayne State University Press, Detroit, 1965, pp. 190. $6.95.

THE Lafayette Clinic, Detroit, with 145 beds, has been developing a treatment service for adolescents for 7 years. Dr. Beckett is the chief of this service and, at the time of writing, about 25 adolescents of both sexes, aged 12 to 18 years, were in residence; mostly in an open 18-bedded ward for boys and the others spread through the rest of the hospital. There was as yet no special ward for girls who comprised about one-fifth of the total. Short-term treatment is undertaken and the average length of stay has been 3–4 months. Adolescents with all kinds of psychiatric illness are admitted; about one third had been involved in major, and one third in minor, antisocial behaviour; the others had caused no problem outside their homes. The author stresses that an adolescent hospital service should be able to cope with acting-out or antisocial behaviour and work out means to do so.

In describing psychiatric ill-health in adolescents, he concentrates mostly on the behaviour patterns they may show in relation to their state of growing up and to their family psychopathology. While these are important, the wide range of classical psychiatric illnesses which adolescents may also show is only briefly indicated; for example, the psychoses, organic brain syndromes or the neuroses. The reader may thus be left with an impression that is over-simplified, and come to discount the fact that a wide knowledge of general psychiatry and of child psychiatry is required, besides experience of adolescents' special proclivities. It is of interest here that over a third of the patients admitted were diagnosed 'personality disorder' and it seems debatable how far this diagnostic label can be attached with confidence to those who are as yet immature.

A mostly excellent description is given of the regime that the hospital and its staff have adopted to treat adolescents. At the Lafayette Clinic adolescent patients can be moved to acute wards, or even placed in seclusion. This may account for the higher proportion of patients with difficult acting-out behaviour that are contained there compared with elsewhere, although no results of treatment are given. However, the need to set limits to behaviour in hospital by external controls, without being punitive, while efforts are made to build up inner controls, are rightly stressed. Much useful information is given on many other aspects of the care of adolescents in a hospital unit, and the importance of placement and of after-care following discharge is pointed out; the more necessary if treatment is short-term. On the whole, this book can be recommended to those who plan an adolescent in-patient unit and it mostly confirms the experience of those who are already familiar with the problems to be met in this field.

W. WARREN

Jahrbuch für Jugendpsychiatrie und Ihre Grenzgebiete. Vol. IV. H. STUTTE (Ed.). Hans Huber, Bern and Stuttgart, 1965. Pp. 251. DM. 32.

THE Yearbook of Child Psychiatry and Allied Disciplines is the official organ of the German Association of Child Psychiatry. In his foreward Professor Stutte claims growing significance for the Yearbook as a reliable source of information on the scientific status of the psychiatry of childhood and adolescence. He mentions that the Yearbook has been criticized for not containing sufficient psychoanalytic contributions and defends this by explaining that in Germany, in contrast to Anglo-American countries, child psychiatry is based on hospital practice and belongs to an eclectic and clinical tradition. What is more striking for the British reader is the paucity of factual reports.

The first part of the book consists of nine original articles of which only four describe actual data. Inhelder discusses the intellectual functions of children presenting with language difficulties; Stutte reports a follow-up of six children who underwent hemispherectomy; Leiter describes two cases of paroxysmal tachycardia presenting as behaviour problems; and Doris Weber reports on 17 cases of anorexia nervosa of puberty. In addition there is a single case study of neurotic life difficulties present in three generations; a philosophical discussion of the educationalist's aims and ideals in teaching handicapped children; a guide for counsellors and psychotherapists on how to avoid mistakes in treatment; a description of parent counselling with multiple therapists; and a discussion of "cerebral localization as a developmental problem".

The three review articles which follow are more distinguished. Bickel usefully summarizes the world literature on congenital metabolic disorders and mental deficiency and Fischer has contributed an excellent review of the literature on early infantile autism. His analysis of the evidence for genetic factors in this condition and for its relationship to schizoid personality disorders, especially to Asperger's "autistic psychopathy of childhood", is particularly valuable. Stutte and Harbauer's "Nosology of Heller's Dementia infantilis" completes this section with a ponderous flourish. The Yearbook ends with reports of meetings and announcements.

One is left with an impression of enormous differences in orientation between German and Anglo-American child psychiatry. It seems that in Germany the child psychiatrist allies himself with the paediatrician and especially the neurologist on the one hand (he is interested in rare syndromes and in brain pathology), with the educationalist on the other. Differences in terminology are interesting. Children are not "maladjusted" but "schwererziehbar" (hard to train or educate), not "deprived" but "verwahrlost" (neglected, wayward). Major social issues do not find a place in this book. The contributions of psychology and sociology to child psychiatry are largely ignored, although the authors come from a number of different disciplines. Most remarkable of all, none concern themselves with the problems of scientific theory testing and statistical evaluation of data that tend to preoccupy their Anglo-American colleagues.

S. WOLFF

Case Studies in Behaviour Modification. Edited and Introduced by LEONARD P. ULLMANN and LEONARD KRASNER. Holt, Rinehard and Winston, New York, 1965, pp. xii+401.

THE purpose and scope of this collection of fifty papers by various authors are similar to those of the collection of forty-two papers edited by Eysenck and published in 1964 under the title "Experiments in Behaviour Therapy". Of the papers in this collection, thirteen are also in Eysenck's book; the content of several others appears there in slightly different versions; most of the papers have already been published in the journals.

With few exceptions, the papers describe the successful treatment, by a method based upon theories of learning, e.g. operant conditioning, of one or a small number of patients. Most of the disorders treated are common, but the authors do not as a rule say how the case reported was selected, or whether, and on what grounds, the result is to be regarded as typical or unusual. Nearly all the disorders are ones in which an equally satisfactory result is readily obtained by other methods, even if not by psychoanalysis. Treatment situations are complex, and case studies seldom provide evidence on which to decide what are the measures which produce benefit. It is difficult, therefore, to share the authors' confidence that the removal or diminution of the symptom was due to the special procedure.

The point is made repeatedly, as is usual in the writings of behaviour therapists, that symptoms have been removed without any new symptom appearing; it is said that the contrary would be predicted from psychoanalytic theory. Yet few of the authors give adequate information about the patient's behaviour in other respects. The therapeutic problem in cases of anorexia nervosa, for instance, is regarded as being the modification of eating habits, and little importance is attached to disturbances in the patient's relationships with her parents, boy-friends, etc. That I make this criticism reveals that the viewpoint from which I look at disorders is different from that of the authors', which I regard as naive. I am unimpressed by the evidence so far available that theirs leads to more benefit to patients.

It would be fair to conclude from this book, I think, that the experimental testing to which behaviour therapists have subjected their hypotheses is still at a primitive level, and that they do not yet live up to the high scientific standards they preach with such youthful brashness and vigour.

D. Russell Davis

Experiments in Behaviour Therapy. H. J. Eysenck (Ed.). Pergamon Press, London, 1964, pp. x+558. £5.

This book contains 42 papers on behaviour therapy, most reprinted from other sources, and linked with introductory passages by Professor Eysenck. The first, and longest, of these attempts to answer at length a number of the criticisms which have been levelled at behaviour therapy, the others are brief and the papers are left to speak for themselves. The selection is a good one and the book gives a reasonably accurate impression of the state of development of the subject. It also raises important problems.

Eysenck takes a generous view of his subject and includes papers on rational psychotherapy by Ellis and on hypnotic treatment of asthma by Edwards. Both are clear and interesting but they raise the question, what are we to include within the term behaviour therapy? Eysenck defines it as "an attempt to alter human behaviour and emotion in a beneficial manner according to the laws of modern learning theory": hypnosis can only be included in this definition by making the unproven assumption that it is "dependent very much on verbal conditioning" (p. 285). This is not just a pedantic point: some behaviour therapists induce hypnosis as part of their treatment, and it is impossible to be certain how far the results they report are to be ascribed to the effects of learning and how much to suggestion. Anyone who has used behaviour therapy, and has also experience of psychotherapy, will know that several techniques used by psychotherapists are employed in behaviour therapy; those with no personal experience of the method have only to read Rachman's admirably clear section on the use of systematic desensitization to realize how much support, encouragement, and discussion of feelings and motives, enter into the course of this particular form of behaviour therapy. To accept this is not to deny the value of the specific deconditioning procedures, but it does emphasize the futility of setting up behaviour therapy as an alternative system of treatment. Its place is surely as part of a wider concern for the patient, in which other treatments, including psychotherapy, play their part.

The section on behaviour therapy with children contains nine papers, but they form a less satisfactory collection than those in the rest of the book. The editor himself points to the paradox that although relearning methods would seem in theory to be particularly suitable for children's disorders, they have been practised less widely than with adults. He presents his own reasons for this, but one reason, suggested by the papers, is that behaviourists have a long way to go before they can offer psychiatrists specific methods which can be applied to the wide variety of patients met in clinical practice. Another view put forward in the book is that progress has been slow because "disturbances of behaviour in childhood are usually of the deficit type" (p. 454) and that operant conditioning procedures to "shape" new behaviour will deal with these problems. A clinician might be excused for thinking this far too simple a view, but nevertheless the papers do show that learning methods have their value in selected patients.

Three of the papers in this section deal with the use of operant conditioning methods to investigate the response of normal nursery school children to various kinds of reinforcement programmes; they are of considerable interest, but it is a pity that other approaches to learning in normal children were not also considered, especially work on learning by modelling and imitation, which is particularly relevant and which may eventually help to widen the scope of behaviour therapy.

Ferster and de Meyer's paper, on the development of performance in autistic children, shows how learning theory can help sometimes to bring about limited changes in these children, who fail to respond to the ordinary processes of social learning, but can learn slowly when given food and other concrete rewards. It is a slow process, and the results are modest.

The book can be recommended to anyone who wishes to find out what behaviour therapy can offer, what are its limitations, and what promise it holds for the future. It is well produced and there is a good index, but it is a pity that it is so expensive.

M. G. GELDER

The Mentally Retarded Child. A Psychological Approach. H. A. ROBINSON and NANCY M. ROBINSON. McGraw Hill, New York, 1965, pp. xvi + 639. $10.50.

READING English texts scarcely prepares one for a book of this kind which presents psychology as it might sound if read from an encyclopedia. It is clear, interesting in not too demanding a fashion, and is comprehensive without being too authoritative. It refers to many aspects of the research associated with mental deficiency, shows how Piaget's work is relevant and does the same thing for psychoanalysis. It has a chapter on the genetic syndromes in mental retardation, which is a useful introduction and begins to discuss the physical (i.e. physiological) environment as a cause of mental deficiency, which is a thing long neglected in texts of this sort. For the younger psychologist this could prove a most useful chapter. The book is in fact something like a well-prepared guided tour. There are no difficult passages, no hard climbs, no one is provoked to doubt the omniscience of the guide and altogether everything goes with rather a smooth swing.

Perhaps it is this easy-going pace which builds up some anxiety in the reader. Where is the pedantic footnote? Why Dringman and Tarjan (1960) instead of Pearson and Jaederholm (1914)? When Sir Cyril Burt, at last, gets reference in an American book, why not notice *The Backward Child*? Good marks must be given, however, for noticing Sir Godfrey Thomson's *Factorial Analysis of Human Ability* which is neglected by British writers on the subject. Where is the careful and scholarly presentation of both sides of the question? Little uncertainty will be found in this volume and the reason seems to be that it is aimed at "upper division and graduate courses on mental retardation in our colleges and universities" . . . and . . . "Second, this book is intended as an introductory text". Under these circumstances we must regard it as first-class. Nicholas Hobbs, president elect of the A.P.A., who wrote the foreword, rightly says that the book is lucid. His hope that it will prove a great book seems to this reviewer a kindly fellow-feeling rather than a serious judgment.

When Tredgold and Penrose were the only texts on Mental Deficiency at the eve of the second world war and Sarason was still writing his psychological text, one was grateful for any general guidance in the field. More recently many new texts have become available, Clarke and Clarke and Ellis among others. Among these psychological texts there is no question that this book takes second place for intellectual content although it tries to do some things which the others do not. For example, it attempts to outline differential diagnosis, taking account of possible emotional sources of backwardness. This kind of approach is more characteristic of Sarason than of Ellis or Clarke and Clarke. The book is also the work of the authors and not a collection of studies. This makes it slightly more consequential in style but naturally rather less detailed and precise than the specialist essays of a group of experts can be expected to be. Also its introduction of Piaget, although cursory, is praiseworthy, but scarcely as detailed as Mary Woodward's chapter in Ellis.

This should be introductory reading for all psychologists concerned with mental deficiency but it is at a level which makes it essential that it be supplemented with more detailed and demanding studies.

N. O'CONNOR

Stuttering Therapy for Children. H. Luper and R. Mulder. Prentice Hall Inc., New Jersey, 1964, pp. viii+225. No price.

Stammering (or stuttering, in American terminology) has been called "the disorder of many theories". The authors of this book have refrained from adding to them or from specifically indicating which of the many theories they favour. But in the preface their "basic interest in stuttering therapy and the groundwork of any important insight we may have acquired along the way" is ascribed to Van Riper, himself a stammerer, and the reader who is cognisant with his views cannot fail to recognize the influence of his deep understanding of this distressing and complex disorder in the humane and broad approach to therapy indicated by the authors.

Stammering is viewed not as a symptom of an abnormal personality, but as the defensive reaction of an individual to social stresses bearing upon an insufficiently stabilized speech skill. "There, but for the grace of God", say the authors, "speak I."

The overall aim of therapy is clearly stated—freedom from fear being regarded as more important than freedom from disfluency. It follows that the writers are not concerned with techniques designed primarily to establish a superficial speech fluency, but rather with a careful assessment and relief of those stresses generating the anxiety which prevents fluency.

The book is particularly designed to help the therapist concerned with the treatment of the schoolchild. The authors divide the development of stammer into four stages, indicating at each stage the shifting balance of stress from environment to child. A good assessment of this balance is vital to the therapist as only with this knowledge is it possible to know where the spearhead of therapy must be directed at any given stage. In this book the problem is discussed with much insight.

Although this division of stammer into four categories certainly helps to plot the shift of therapeutic emphasis, it has also some disadvantages. The categories are arbitrary; in actual fact no one stage is clearly divided from another and this leads to a good deal of overlapping and reiteration in the text.

Despite this, and allowing of course for a difference of idiom which may at times prove a little trying to the British reader, this work, although not claiming to be an exhaustive examination of this complex subject, has much to offer to all who are interested in helping the stammerer. It will, I suggest, be particularly welcome to the young and inexperienced therapist who, confused by the diversity of theories, may be forgiven for some difficulty in seeing the wood for trees.

J. MacLaren

In Pursuit of Self-Esteem: Case Studies of Eight Elementary School Children. P. S. Sears and V. S. Sherman. Wadsworth Publishing Co., Belmont, Calif., 1964, pp. 280. Instructor's Manual, pp. 48. $5.25.

Students of psychology sometimes complain that among all the systems, theories and experiments, the rats and the stats which comprise the bulk of their course, the human being has disappeared without trace. His rediscovery will be aided by this book, which offers vivid and detailed accounts of eight children at school, and enlists the student's active participation in seeing what light can be thrown on their personalities and behaviour by the use of a range of psychological tools.

The student is asked first to examine the affective implications of two sets of sentence completions by each child, one set (projective) in the third person, the other (direct) in the first. This seems a good beginning. He is then confronted with a table extending over fifteen pages, in which are listed, for the eight children in parallel columns, their scores and quartile positions in the class on some 350 measures of ability, achievement, creativity, interests, attitudes, self-concept, social distance and personal qualities rated by teachers and peers. From this material alone he is asked to attempt a hypothetical character sketch of one child. Only then is he allowed to read the descriptive case study, from which he is to check, modify and round out his hypotheses, and finally to consider in discussion their psychological and educational implications.

The authors claim that this at first sight formidable task not only reveals the values and limitations of the various measuring instruments employed, but also involves the student, bringing a stimulating sense of 'intellectual potency', at the same time giving valuable insight into his own thought processes. This reviewer has found it a worthwhile exercise for an experienced psychologist; it presupposes some sophistication in the evaluation of test scores, but could not fail to provoke thought and fruitful discussion among advanced students and practitioners both of psychology and of education.

The case studies, written in Vivian Sherman's warm and readable style, integrate the scores already studied with a mass of subjective data: anecdotal material from observers and teachers, extracts from interviews with the child, from projective test responses and free compositions, and from occasional conversations with parents.

Such a plethora of data could easily have become overwhelming, repetitious or confusing for the reader; but so skilful is the selection and presentation that each child emerges, in the space of twenty pages or so, as a person in the round, with all the distinctive characteristics that make him what he is for his teacher and classmates. Since the observations extend over two years (ages ten and eleven) and some of the instruments were used four times, changes in personality cannot be overlooked; the question of how far such changes depend on the classroom situation, and in particular on the teacher, continually crops up, and the interactions of the two teachers concerned with each child are given full consideration.

Reporting is kept typographically distinct from authors' interpretations, and from questions designed to make the student weigh up for himself the possible inferences to be drawn for an understanding of the individual child, and thence of children generally and of the educational problems that arise. Readings are listed bearing on each case.

And why the title? The research, largely inspired by the writings of Sullivan, is focused on children's self-concepts, and on how these interact with their achievements and with the opinions of their teachers and peers. While these questions receive considerable attention in each individual case, there is no chapter drawing the findings together; for theory one must consult other publications of the investigation of which this forms part. But, as the authors admit, the techniques employed for the most part reveal just as much, and as little, of the child's self-concept as he is willing to express, and the projective tests as used here go only a little deeper. One is frequently aware of unplumbed depths, and also of the gaps left by the dearth of information about the children's home lives. These are the limits within which teachers have to work; accepting them, one can admire the thought, percipience and empathy which have contributed to the understanding of these children, and profit from the educational finesse with which this understanding is passed on.

TERENCE MOORE

Concept Growth and the Education of the Child. J. G. WALLACE. National Foundation for Educational Research for England and Wales, 1965, pp. 268. 42s.

THE author divides his work into two main sections. The first, taking up a little more than a fifth of the book, deals with the growth of concepts from a behaviourist standpoint; while the second handles the broad stream of ontogenetic studies, investigations that cannot be neatly placed in any one category, and a number of theoretical issues.

Thus the first two chapters review the literature which deals with the manipulation of stimulation, motivation and reinforcement in relation to concept formation; also with the relationship between language and conceptualization, the question of which concepts can be acquired by animals, and the analysis of what takes place in the conceptual process. Chapter 3, only eight pages in length, gives a very brief account of Piaget's developmental theory. This is followed by three chapters dealing with the growth of mathematical and scientific concepts, logical thinking and of an understanding of causality; together they form a substantial part of the book. The title of Chapter 7 is 'Educational Aspects', but the material deals in great measure with some of the more recent approaches to mathematics teaching, and does not always immediately follow on from the discussion of the earlier chapters. Wallace certainly provides his readers with a 'mixed bag' in Chapter 8. After discussing the growth of varied concepts which he subsumes under the title 'social', the author deals with Self-concepts, and then with the ability of the child to perform classification. After a brief review of some of the literature dealing with conceptualization in mentally and physically handicapped pupils, the book concludes with a discussion of such important topics as: the adequacy of Piaget's logical model; the translation of Piaget's theory into S-R terms; the question of stages in the growth of concept formation; the relative claims of nativism, maturation, equilibration and learning theories as an explanation of conceptual growth; and the complex problem of the relationship between perception and conception.

This book, like most others, has both strengths and weaknesses. First, the author has reviewed a great deal of relevant literature. The bibliography runs into nearly twenty pages, and contains around five hundred references. Second, Wallace has from time to time made perceptive comments on the data he is handling. For these aspects of his work we must be grateful. On the other hand we may suggest some flaws. The author does not clearly bring out the fundamental point that in Piaget's system, the type of concept that can be elaborated depends upon the degree of dissociation or level of abstraction that is possible for the child, so that the acquisition of, say, the basic concepts of mathematics and science can be attained when he can dissociate the order he imposes on his experiences from the experiences themselves. Further, while many different ideas are brought together and discussed, the treatment does not always appear orderly and well planned, so that the text remains a 'hotchpotch' in places. It could be a useful reference book for serious students of concept formation.

K. LOVELL

How and why do we learn? W. R. NIBLETT (Ed.). Faber & Faber, London, 1965, pp. 196. 21s.
THIS book is based on a series of nine public lectures given at the University of London Institute of Education in 1963-64. It is divided into two parts, the first of these containing contributions by six psychologists working in the educational field, while the second consists of addresses from leading personalities outside this field: Richard Hoggart, Stephen Potter and Sir Hugh Foot.

A careful reading leads one to conclude that each of the contributors has something to say, that each expresses this quite well within the limits of what can be done in the course of a single public address, and that insofar as the main function of an address of this kind is to communicate to the listener something of the enthusiasm which the speaker feels for his subject, the majority of these were probably successful with at any rate a part of their audiences.

Nevertheless, the production of these talks in the form of a book is of doubtful value, for their themes are too diverse, so that the work as a whole lacks unity. It is too short to be more than an introduction, yet it ranges too widely to form an adequate introduction to anything specific. The title is misconceived, since it conveys the impression that the book is concerned with research on learning and its relevance to education. An able introductory talk by Wiseman suggests that he too anticipated that such would be the topic of the series as a whole. In fact only the next three short chapters are concerned with it, and of these only the chapter by Wall on "Learning to think" offers any kind of useful guide to the student.

The last two chapters of Part I are both concerned with social learning. Morris' "How does a group learn to work together?" provides a stimulating insight into the aims and principles which govern work with small groups associated with the Tavistock Institute and includes a useful short bibliography. The next chapter, by Taylor, raises a number of important questions bearing on the relation between school and society. Since all three of the contributors to Part II are concerned with some aspect of the impact of society on the individual, there might have been some unity about the theme of learning in society. But this too proves illusory because of the specificity of themes and their diversity from each other. Hoggart speaks about advertising, but with little reference to varieties of communication and their effects on learning. Potter has some enlightening reminiscences around the topic of "Learning to enjoy", while Foot's very brief analysis of the role of the emergent nations in contemporary world affairs is quite unrelated to anything else in the book.

E. A. LUNZER

Conflict in the Classroom. N. J. LONG, W. C. MORSE, RUTH G. NEWMAN. Wadsworth, Belmont, California, 1965. No price quoted.
THE British reader will at first be somewhat confused by the unusual structure of this massive volume. The first large section consists of lengthy extracts from a variety of authors—Chekhov, Dostoyevsky, Sillitoe, Maugham, Dickens, and others—who have given descriptions of mental or emotional illness in their novels. At the end of each extract the author-trio attempt a diagnosis of the case. Curious as such an introduction may be the cumulative effect is useful, offering as it does a variety of thumb-nail sketches of maladjusted individuals. The nature of the problem is, in this way, vividly defined from the general body of literature.

The remainder of the book is a careful compilation of papers from an exceptionally wide selection of professional workers in the field of personality disturbance, varying from Anna Freud to Long, Morse and Newman themselves, with the expected heavy weighting on American authors.

It would be difficult to fault this skilled selection, and the way in which the papers are grouped to answer progressively the major sectional questions: How can Disturbed Children be Identified? What Kinds of Help are Appropriate? and finally on to How is Research Helping?

The main advantage of a structure of this kind is that it gives a succession of vignettes into the work of a very large variety of specialists, and a broad impression of the wide span of psychiatric investigation, educational experiment, and psychological research, in maladjustment and delinquency. The patchwork quality of the book is remedied a little by the authors' linkages so that, although it never reads evenly, there is a sense of direction and wholeness.

The weakest section, as one might have suspected, is that on evaluation. "How do we measure improvement?" the authors ask, but, despite the help of Bruno Bettleheim and Fritz Redl, fail to provide a convincing answer. Therapists who use psycho-analytical techniques notoriously ignore the question of evaluation. In this they seem to underestimate the administrator's need to be reassured of the efficacy of the work they finance, and so leave the door open for grossly over-simplified studies like the one recently financed by the London County Council, blandly and blindly based on a behaviourist assessment, and which simply provides comforting answers to the wrong questions.

Psychoanalysts know the right questions to ask, and have an idea of the intricacies of the problem, but they have yet to pay sufficient attention to the demand for a realistic assessment of their work.

Conflict in the Classroom does, however, have the virtue of presenting an over-all picture of our present state of knowledge in this field where the educationist and the psychiatrist lean heavily on each other, yet so often find that their combined skills are just not good enough. The impression conveyed by these collected papers, however, is that we are at least facing in the right direction.

ROBERT SHIELDS

Deprivation and Education. M. L. KELLMER PRINGLE. Longmans, London, 1965, pp. 311. 42s. 6d.

THE field of deprivation has stimulated intense interest among both practically and theoretically oriented workers and presents today one of the greatest challenges to social action. The need for prevention is recognized by all, yet it is still a hope rather than a reality and can become only less nebulous by detailed investigation and informed discussion. In this book we find both these ingredients, for Dr. Pringle, one of the acknowledged leaders in the study of the deprived child, gives us here another opportunity to read some of the research reports and lectures she has published over the last few years. Some of the papers are of a technical nature while others are addressed to rather wider audiences, but all aim to delineate in objective terms the deficits concomitant with deprivation and the action which may be taken to instigate 'secondary' if not 'primary' prevention. A final chapter, especially written for this volume, deals specifically with the concept of prevention as applied to child care.

In view of the recent concern over the nation's untapped intellectual resources, the chapters dealing with the intellectual development of understimulated children are of particular interest. Language development, it appears, is a function especially vulnerable to deprivation, and being of central importance in educational achievement it is not surprising to find that institutionalized children have difficulty in manipulating the verbal and numerical concepts on which scholastic progress depends. Thus we see illustrated here the trend away from the global use of the term 'deprivation' and instead the attempt to spell out in detail the processes behind this kind of life experience, the manner in which it impinges on the individual, and the types of behaviour which are, and which are not, affected thereby. That such a strategy can lead to most useful ameliorative action is shown in a striking manner by the action research project of Dr. Pringle and her colleagues to improve the scholastic achievements of deprived children through a remedial education scheme. This may well be regarded as the most valuable part of the book by many readers and will, one must hope, stimulate further projects of this nature.

H. R. SCHAFFER

School Psychology. ROGER REGER. Thomas, Springfield, Illinois, 1965, pp. xv + 213. Price not stated.

THREE little boos and three big cheers for this hard-hitting analysis of the ailing school psychology service in Wayne County, U.S.A. The boos first: not many readers will be gained by the general appearance and old-fashioned print of this book, neither of which approaches the level of most American books. Secondly, six out of nineteen chapters have appeared as occasional papers in other periodicals, the calibre of which will not be known by British readers. Thirdly, some of the chapters are so short that there is barely room to state, let alone develop, a theme.

Now the cheers: Reger sets out to do three things, to establish an adequate professional identity for the school psychologist, to challenge a number of assumptions which seem to underly much of American school psychology practice, and thirdly to develop a theory of special education which is based on relevant principles.

The psychologist is seen primarily as an educator, not as a clinician. He is involved in a teaching process through his involvement with teachers and his planning of educational programmes. He is a researcher. This needed to be stated, although it may well be unacceptable to many.

It is in challenging some current assumptions that Reger will both delight, and upset, many workers in psychology and child guidance. The first assumption to be 'knocked' is the *psychodynamic disease doctrine*. The attack is quite ruthless. At the same time, however, he deals equally sharply with the so-called "biological school" which he sees as the polar opposite. It is interesting that Eysenk also comes under the hammer. The most devastating attack, however, is reserved for the 'brain damage' concept and he spells out his criticisms in eleven pungent points. There is a superb footnote (p. 190) about Strauss which is an absolute gem. In line with this criticism is the interesting suggestion that the 'hyper-active' 'distractible' child needs more stimulation, not less. And he makes out a good case.

The theory of special education is built round the dimensions of educational philosophy and goals, curriculum methods and content. This should not be a new idea, but it probably is, especially when recommendations for special education so often rest on non-educational criteria and are so often made by non-educationists.

This review has only picked out the highlights of the book, but there are many more interesting thoughts in nearly every chapter. Although the argument is geared to the American market, the book should be a 'must' for educational psychologists in Britain. Other workers in child guidance would also find plenty of good material—if only for the controversy. And for those who reject Reger's arguments, their refutation of them should be a valuable experience.

A. T. RAVENETTE

Child Development. 4th Edition. ELIZABETH HURLOCK. McGraw Hill, London, 1964, pp. 776. 64s.

THE LAST few years have witnessed a proliferation of revised editions of textbooks of child development. This book by Dr. Hurlock first appeared in 1942 and is now in its fourth edition. The presentation as before is of aspects of development rather than chronological: there are fifteen chapters, each of about fifty pages, on, *inter alia*, physical, motor, emotional, social, moral and language development, in addition to introductory chapters of a general nature on "Foundations of the Developmental Pattern" and "Principles of Development".

This is more a textbook of child development than one of developmental psychology. It is rather general in tone and may irritate on the one hand by a certain vagueness and on the other by a tendency to dogmatize on child rearing methods, as in its injunctions on the need to discourage left-handedness and to correct speech errors. Many statements of the A→B type are made without qualification or adequate documentation, though these are sometimes followed by a belated stress on the wide range of individual differences, which leaves one wondering just exactly what has been said.

Despite its many references—several hundred at the end of each chapter—the book is disappointing for the serious student. References given in the text do not necessarily refer to statements made, and many of the references are to other textbooks. The lack of an author index is a handicap, and a summary of each chapter would have given greater insight into its organization.

There are also a large number of rather surprising omissions of content. Perceptual development is barely mentioned—e.g. work on pattern and depth perception by Fantz, Gibson and others; physiologically and ethologically orientated studies on infants by Richmond, Lipsitt and other investigators could also have been quoted. Even more surprising is the sparseness of the discussion on intellectual development which makes only cursory reference to Piaget, and the entire absence of a full discussion of studies on learning, either in the laboratory or in the classroom. The chapter on speech development goes no further than McCarthy's excellent treatment eleven years ago, and omits discussion of the contribution of psycholinguistics and of workers such as Osgood on concept formation. These and other notable contributions are discussed critically and in detail by authors of other textbooks such as Thompson, Munn and Mussen.

What one misses in Hurlock even more than a comprehensive treatment of the field is a concern for scientific rigour and method. These pages reflect little interest in the validity of the studies quoted and there is virtually no discussion of methodology or research problems. One looks in vain for a critical approach: all that one finds is page after page of well-meaning, homely generalities. It is hard to see who is going to benefit from this book.

PETER MITTLER

Child Health. Its Origins and Promotion. F. W. CLEMENTS and B. P. McCLOSKEY (Eds.) Edward Arnold, London, pp. 402. 1964. $5.75.

THE subject of child health is an ambitious one for any team of experts to embark upon. In the first place it is easier, more interesting, and more dramatic, to describe the effects of disease than to define the desired norm for physical and mental development. Secondly, the amount of knowledge on these topics is uneven. More is known about genetic endowment and physical development than about emotional growth and the necessary environment for optimal mental development.

As one would expect, this book required a large number of contributors, as it gathers information on a wide range of subjects. These cover hereditary endowment, cultural background and physical growth, and extend to emotional development and community health. The contributors are Australian, and the research quoted tends to have a parochial bias.

As stated in the preface, the book intends to meet the needs of teachers in training, in order to equip them to teach health in schools in a more effective fashion. The editors however express the hope that the book will be helpful to nurses, social work students, speech therapists, and occupational therapists, and also to medical undergraduates and postgraduates. There is no doubt that this book will meet the needs of the undergraduate group more successfully than the needs of those peoole who have already begun to do postgraduate specialisation in paediatrics or psychiatry. The book tends towards vague theoretical generalisations which would irritate the more serious student, and the research quoted should have been more detailed.

The most satisfying chapters are those in which knowledge is more detailed and certain, and these chapters relate to physical development and to the practical applications of health education. In the sphere of mental development there are surprising omissions. For example, in the discussion of mental development, "milestones" are cursorily mentioned and the name of Gesell is not invoked. Piaget's work is also omitted although it would appear to be relevant. There are also some surprising additions. A chapter by a lecturer in theology on the spiritual well-being of children is unusual in a book purporting to deal with clinical observations.

In summary, this book's avowed aim of giving an over-all picture of physical and emotional development to students who are unused to this approach has been fulfilled. For the more experienced and sophisticated students the content would be too superficial and the lack of detail dissatisfying.

L. WHEELAN

Wisdom with Children. I. N. KUGELMASS. John Day Company, New York, 1965, pp. 529. $8.95.

IT IS no mean task to write a "complete guide to your child's development, well being and care" with the aim of not only helping parents "to bear with the daily difficulties of their children but to solve them wisely" and in 500 pages. The attempt is to provide encyclopaedic information about the infant from birth, through infancy and childhood in both health and disease, including emotional health and emotional disorder.

Young parents are assailed from every quarter with pamphlets, booklets, magazine articles, broadcasts and television programmes about parenthood and child rearing. It is assumed by consumer spending that there is a good market for these products. Dr Benjamin Spock, whose book on

"Baby and Child Care" sold more than 16,000,000 copies in 26 languages, has been hailed as the "second most important man in a woman's life between 18 and 34".

In reading this book I tried to imagine myself as a young parent and what help it might give me. The style is chatty, but the short sentences soon create a staccato effect which makes reading difficult. I had to guess what percentile charts mean, and I was terrified that high blood pressure during pregnancy can induce mental deficiency. When I looked up circumcision I was utterly confused by not knowing how you tell if a foreskin is too long or too tight. And what help is it to be told "you must continue to teach a child to accept the baby"? In the more objective role of reviewer I found the book unhelpful and even confusing when it moved away from factual information, although much of this was mistaken: p. 175 on head banging . . . "you can stop the movement by placing a sharp object at the site of the banging", really!: p. 170 on temper tantrums . . . "if he inherits a low boiling point for his emotions, plan an orderly daily routine". These are but two examples of advice which do nothing to help the problem. I cannot see this book with a large readership.

David Morris

BUREAU OF EDNL. & PSYL. RESEARCH

J. child Psychol. Psychiat., Vol. 6, 1965, p. 269. Pergamon Press Ltd. Printed in Great Britain.

NOTICES

NATIONAL BUREAU FOR CO-OPERATION IN CHILD CARE

The N.B.C.C.C. is engaged in an international review of research undertaken since 1948 in the fields of adoption, foster care and residential care of children, and would be very interested to receive information about research projects in these areas (both on-going and completed) conducted by or known to individuals, especially where the information is not available through the normal channels.

Stan Gooch, Senior Research Officer, National Bureau for Co-operation in Child Care, 1 Fitzroy Square, London, W.1, England.

THIRD INTERNATIONAL CONFERENCE OF THE WORLD UNION OF ORGANISATIONS FOR THE SAFEGUARD OF YOUTH (U.M.O.S.E.A.)

This will be held at EVIAN, France, from June 1 to 5, 1966, on the general theme:
"PARENTS AND YOUTH FACING JUVENILE MALADJUSTMENT"

The Conference will be introduced by two inaugural lectures on "*the conflict of generations*" which will be given by two speakers: Professor R. LAFON of the University of Montpellier (Chairman of U.M.O.S.E.A.) who will deal with this problem *in the industrial countries*, and Professor J. A. PONSIOEN of the Institute of Social Studies of The Hague, who will discuss it in relation *to the developing countries*.

Besides plenary sessions, the Conference will break up into eight working parties, to allow for a more thorough study by small groups of the problems especially related to: Rural youth; young urban workers; students; youth in developing countries; individual and family action in industrial countries; individual and family action in developing countries; collective action for prevention and therapy in industrial countries; collective action for prevention and therapy in developing countries.

The Conference (whose official languages will be French and English) is open to all who are familiar with the problems of youth.

All enquiries should be addressed to the Headquarters of U.M.O.S.E.A., 28 Place Saint-Georges, PARIS 9º—tel. 526-04-45.